MapInfo Corporation
200 Broadway
Troy, New York 12180
(518) 274-6000

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MapInfo

Desktop Mapping Software

User's Guide

MapInfo

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MapInfo Corporation
Troy, New York

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MapInfo Corporation can be contacted by phone at:

- Voice: (518) 274-6000
- Fax: (518) 274-6066
- Sales Information and Order Hotline: (800) FAST-MAP
- Technical Support Hotline: (800) 552-2511
- Technical Support Fax: (518) 274-9089

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Preface

Welcome to MapInfo for Windows version 2.0! The field of desktop mapping is expanding every day. And MapInfo continues to lead the way in this relatively new area of database management, analysis, and design.

New features of MapInfo 2.0 include:

- New geographic SQL extensions including Within, Contains and Intersects as well as geographic related joins.
- Over 100 new map coordinate systems and projections (Mercator, Albers, Lambert, State Plane, and many more) that can be changed "on the fly".
- Buffering of any object on a map including points, polygons, lines and polylines.
- Polygon analysis functions, including union and intersect.
- Advanced digitizing (multiple control points)
- Improved geocoding
- New presentation layout window for combining many elements on a single page.
- Parallel street labeling
- Multiple page map output
- Over 100 new line types and fill patterns
- Custom symbol generator

The MapInfo *User's Guide* describes features and tasks you can perform with MapInfo. For those of you unfamiliar with desktop mapping or other database management systems should first perform the tutorial, found in the platform-specific Getting Started manual. The Getting Started manual also contains installation and startup instructions.

Those who are unfamiliar with windowing environments should also perform the tutorial first.

The MapInfo *User's Guide* is an introduction to desktop mapping concepts. Therefore, keystroke-by-keystroke descriptions have been kept to a minimum. For more information on any feature or task, refer to the MapInfo *Reference Manual*. Entries are listed alphabetically according to menu option name, tool name, or key word or phrase.

The color illustrations at the beginning of each chapter were created with MapInfo's projection feature. By using the data supplied with MapInfo, you can easily generate similar maps.

Chapter 1 Introduction

World map using a Longitude/Latitude projection

Desktop mapping is a powerful way to analyze your data. You give graphic form to your statistical data so that you can see it on a map. Patterns and trends which are almost impossible to detect in lists of data become obvious when displayed on a map.

This section includes:

- What is Desktop Mapping?
- How Can Desktop Mapping Work for Me?
- What are MapInfo's Features?
- Will I Have to Change the Way I Work to Use MapInfo?
- How Do I Get Started?
- MapInfo in Action

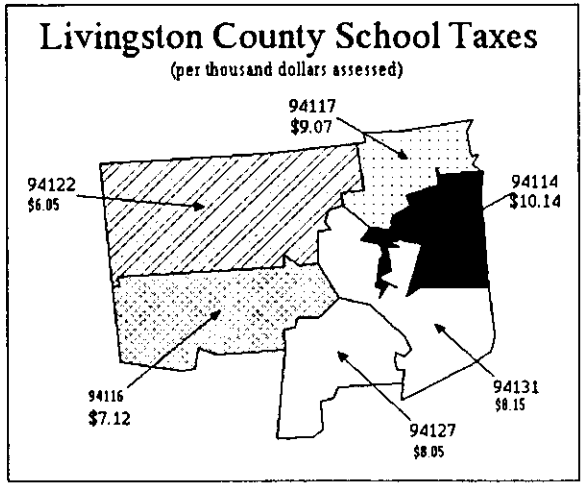
What is Desktop Mapping?

"You can't see the forest for the trees."

This is more than a cliche – it describes the situation all of us face in our work today. Huge quantities of information are available, far more than ever before. Data abounds in spreadsheets, sales records, and marketing files. Paper and disk store masses of information on customers, stores, personnel, equipment, and resources.

Trying to put all this information into a useful context has been like being in the middle of the trees – you can see what's all around you, but you can't see it for what it means.

But now, desktop mapping takes you up above the treetops, so that for the first time, you can see the forest for the trees! Desktop mapping turns your computer from a data processor into a data visualizer, letting you see patterns and meanings in the mass of information.



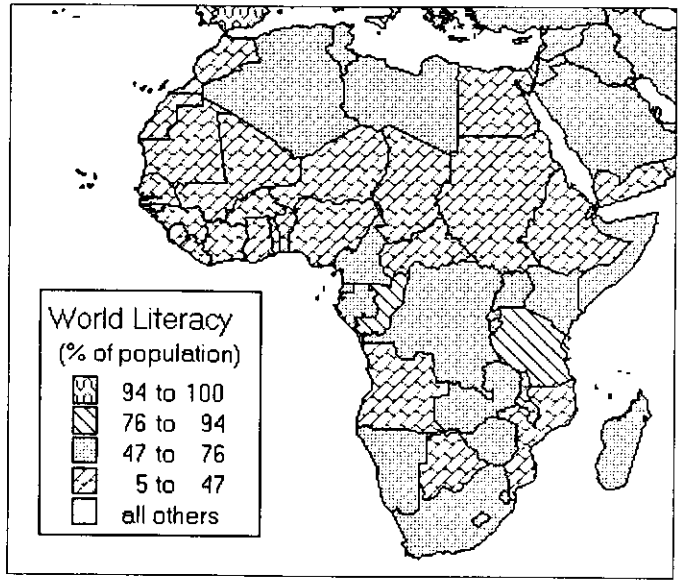
ZIP Code boundaries, shaded according to school taxes

For example, which branch store is the closest to your biggest customers? Textual databases often contain information that is relevant to this question: the customers' addresses and the addresses of the various branch stores. But a textual database has no way of showing you at a glance the distribution of these customers in relation to your branch stores. Even if you could get your database to yield a list of customers who are in the same city as a particular store, you would have to get out a map and a box of pushpins to see the relationships among them.

MapInfo can show these relationships, and more; it can calculate the distances between customers and stores; it can show you the customers who spent the most last year; it can color-code the store symbols by sales volume. What makes it all come together is a visual display of your data on the map. In a single glance, you can see patterns and meanings that remain hidden even after hours of inspecting textual records.

How Can Desktop Mapping Work for Me?

Think about the type of information you deal with every day. Nearly everything relates to geographical locations in some way. An estimated 85 percent of all databases contain some sort of geographical information, such as street addresses, cities, states, ZIP Codes, or even telephone numbers with area codes and exchange numbers.



African map, shaded according to literacy

With desktop mapping, you can take the data you have and place it on a map. Look at the geographic distribution of males between 30 and 35 with annual incomes between $35,000 and $40,000, see where new sales leads are located, examine the effect of redistricting on voting patterns, visualize the regional distribution of power outages.

Seeing where things are gives you a new basis for analyzing what they are – and that means a new dimension of understanding. This is the desktop mapping equation:

Visualization + Analysis = Understanding

MapInfo makes this happen.

What are MapInfo's Features?

MapInfo gives you the processing power of databases (including powerful SQL queries) and the visual power of maps, plus charts and graphs. It's a potent tool for data analysis, sales, and presentations.

Here are some of the things MapInfo offers:

- Direct opening of files created with dBASE or FoxBASE, delimited ASCII, Lotus 1-2-3, and Microsoft Excel; importing of graphics files in a variety of formats; a function for creating database files from within MapInfo.
- Multiple views of your data in three formats; Mappers, Browsers, and Graphers. Hot Views technology allows you to open multiple views of the same data simultaneously and update all views automatically when you make a change to any one view.
- Querying capabilities ranging from simple selections of data from a single file to complex SQL queries from one or more files.
- Workspaces that save all your selections and views so you can start where you left off at the end of your last work session.
- A comprehensive palette of drawing and editing tools and other functions for customizing your maps.
- Thousands of ready-made maps and functions for creating your own maps.
- A layout window for preparing output.
- The ability to change the projection of your map for display or digitizing.

Will I Have to Change the Way I Work to Use MapInfo?

In a word, no. MapInfo is designed to fit smoothly into your work environment, so it only changes the results you get, not the way you work.

To begin with, you can use the data you already have, in the form it's already in -- spreadsheets such as Lotus 1-2-3 and Excel, databases such as dBASE/FoxBASE, popular CAD packages, and other GIS applications, to name just a few. If you have data that is not already on-line, you can create database files right inside MapInfo. Or you can use data supplied by MapInfo -- such as census data.

Similarly, you can use any of thousands of maps available from MapInfo, everything from street and highway maps to world maps. You can also create your own maps, either in MapInfo or with a drawing package. Anything that can be diagrammed--floor plans, flow charts, even brain anatomy -- can be treated as a map and entered into MapInfo.

When it's time to run MapInfo, you'll feel right at home with its windowing environment. After you've organized your data visually, you'll save the results to files, or send them to any of the dozens of printers and plotters MapInfo recognizes.

How Do I Get Started?

If you have your data on hand and you can read a map, you're just about ready to begin. Soon, we'll show you an example of how easy it is to put MapInfo's power to work for you. But first, you'll need to understand a few basic mapping terms and concepts.

Let's say you have all your data in dBASE files. These files might contain names and addresses of customers, total sales of retail stores, or median income of families in particular ZIP Code areas. How will you bring your data files into MapInfo and put the information they contain on a map? How will you combine information found in different files and display it meaningfully (e.g., show the median income and spending profiles of customers in a particular area by combining data from marketing files and sales files)?

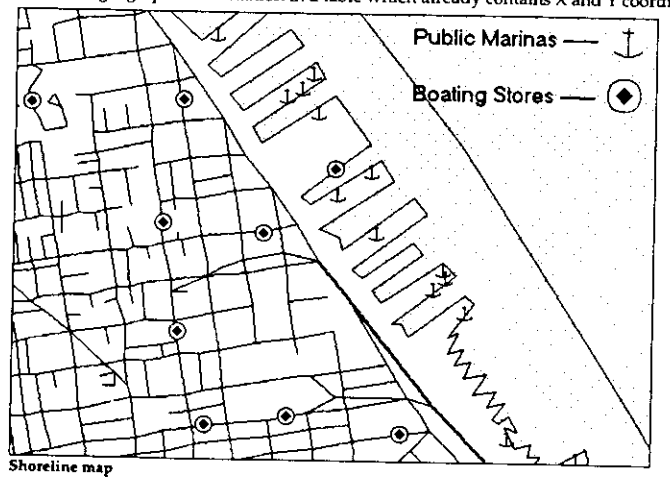
Organizing Your Data and Maps: Tables

As you use MapInfo, you will be working with the files that contain your records and with maps that come from MapInfo or that you created yourself. In MapInfo, data files and maps are organized as tables. MapInfo organizes all its information, whether textual or graphic, in the form of tables; each table is a group of MapInfo files that constitute either a map or a database file.

Everything you do in MapInfo begins when you open one or more tables. To find out how your database files become MapInfo tables, and how to use tables (open, close, save, and so on), see Chapter 2.

Getting Your Data on the Map: Geocoding

To get your data onto a map, you must assign X and Y coordinates to your data records. MapInfo assigns coordinates to your records by matching the geographic information in your data with geographic information in a table which already contains X and Y coordinates.



Shoreline map

For example, your database contains street addresses of retail stores. You tell MapInfo to match these street addresses to the streets in a corresponding computerized city map table. This is called geocoding. MapInfo assigns coordinates to the street addresses in your list of stores so that MapInfo can locate and mark each store on the city map.

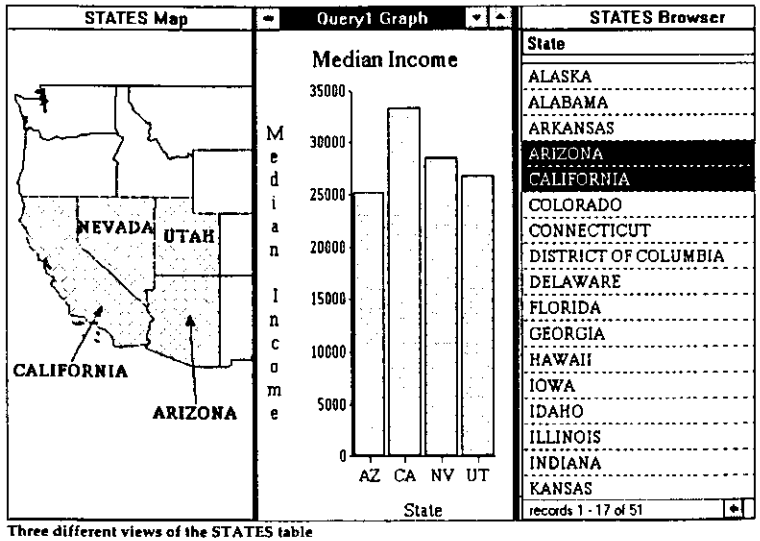
For more information on preparing your data for mapping, see Chapter 4.

Different Ways of Viewing MapInfo Tables: Mappers, Browsers, and Graphers

When it's time to take a look at your tables on screen, MapInfo offers you different formats for viewing your data: Mappers, Browsers, and Graphers. When you open a window on a table, you can choose the format you want:

- Mappers present information arranged as conventional maps, allowing you to visualize the geographic patterns of your data.
- Browsers present information as tabular lists (just as conventional databases do), allowing you to examine tabular data fully.
- Graphers present information arranged as graphs or charts, allowing you to visualize the purely numerical patterns.

With our Hot Views technology, you can choose to view your table in one of these formats or you can have two or more views of your table open at the same time. View a highway map and a city street map in a Mapper, a table of crime statistics in a Browser and a Grapher simultaneously, or a combination of the three -- crime statistics plotted on a city street map.



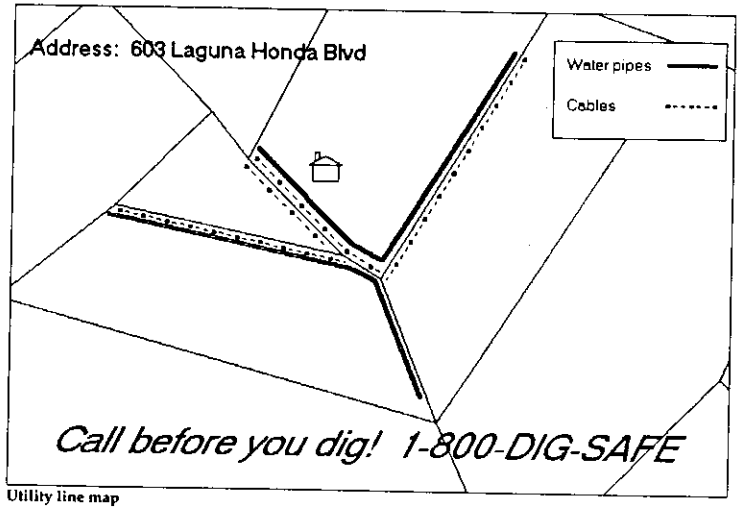
Three different views of the STATES table

If you highlight or change an item in one view (the location of a burglary, for example), the item is highlighted or changed in all views automatically.

Chapter 2 contains information on opening Mappers, Browsers, and Graphers.

Building Your Map: Map Layers

Computer maps, like paper maps, are organized into layers. Each layer is comparable to a transparency. Think of the tables you use in MapInfo as transparent layers that are stacked up to form the map you want to see.



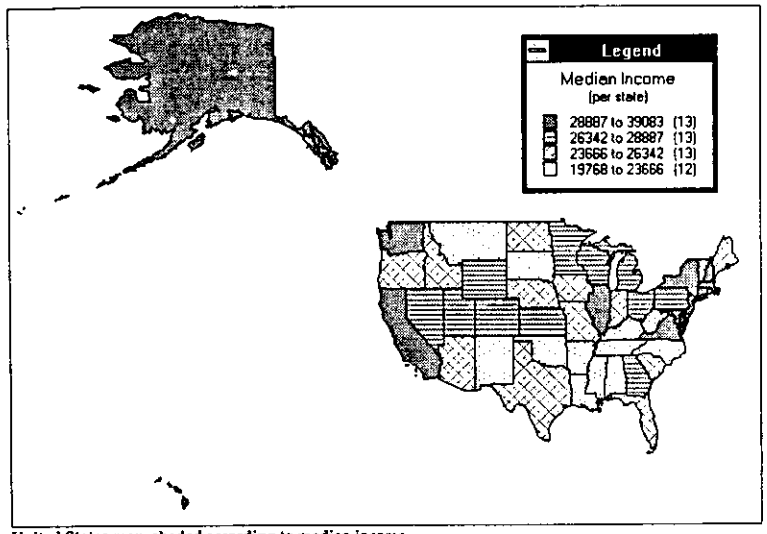
Utility line map

The procedures for adding map layers are quick and simple. You'll find them outlined in Chapter 3.

The Power of MapInfo: Editing and Analyzing

At this point, you are ready to bring the full capabilities of MapInfo into play. You can label areas on the map or draw on it. You can calculate distances between health care providers and their patients and get counts on how many patients live within a given radius of a particular hospital.

By making selections from your table, you can extract new information from sets and subsets of your data or see patterns and distributions, getting answers to such questions as: Which of my customers bought more than $5000 of equipment? Which of my customers is located within a 200 mile radius of my warehouse? Which of my customers bought more than $5000 of equipment and is located within a 200 mile radius of my warehouse?



United States map, shaded according to median income

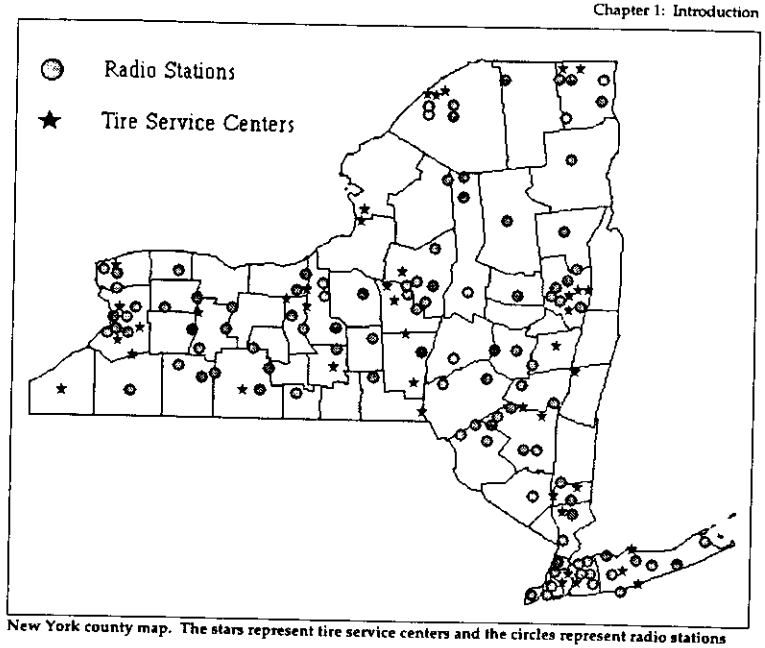
You can shade boundaries (counties, towns, states, countries) according to the total number of customers in each one or according to the number of customers who purchased within the last year. MapInfo refers to this as thematic mapping. For more information about thematic mapping, see Chapter 6.

MapInfo in Action

Now that you understand the basic principles of desktop mapping, you're ready to go. Imagine that your job is to purchase advertising time from radio stations to market your product, a statewide tire service. You have demographic information for your state by county, and radio stations have supplied you with their own demographics and transmission ranges. You also have a list of your tire service center locations.

Using MapInfo, you can quickly and easily bring this information into focus and make informed decisions about which radio stations to use.

You want to begin by seeing your service centers on a map in relation to the radio stations, looking for the stations that reach the areas where your centers are. The first thing you do is open the MapInfo tables you will need: the state, county, and street maps. These will be the first three layers of the computerized map you are building.



New York county map. The stars represent tire service centers and the circles represent radio stations

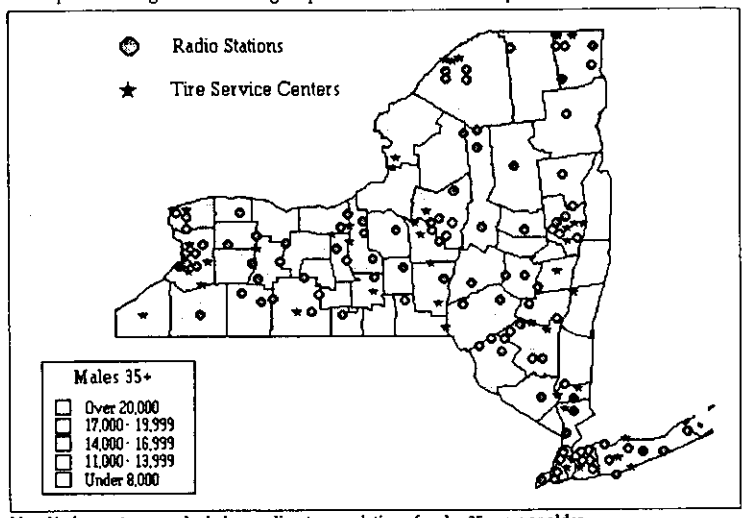
Next, you open your file of service centers and tell MapInfo to geocode it by matching the street addresses of the service centers with the street locations in your StreetInfo map. A few more keystrokes telling MapInfo to add the tire centers to the map, and your data suddenly leaps into view. Blue stars tell you at a glance the distribution of your tire centers across the state. You use the same method to put the red circles representing the radio stations on the map.

Using your file of county demographics, you ask MapInfo to shade the counties where most of your target market (males 35 and older) lives.

Consulting your list of transmission ranges, you select the Buffer command and create a buffer circle around each radio station, the circle representing each station's broadcast area. You can tell just by looking which broadcast areas include the highest concentration of tire service centers or you can ask MapInfo to give you an exact count of the number of tire centers within each area. Tell MapInfo to shade the buffer circles in order according to the number of service centers that fall within each circle. Shade the circles with the most service centers green.

With the radius of each station's transmission range marked, you can see which stations broadcast in areas where your target market is (the shaded counties). But how well do these stations penetrate that market? Which stations will reach the people who are most likely to use your service centers?

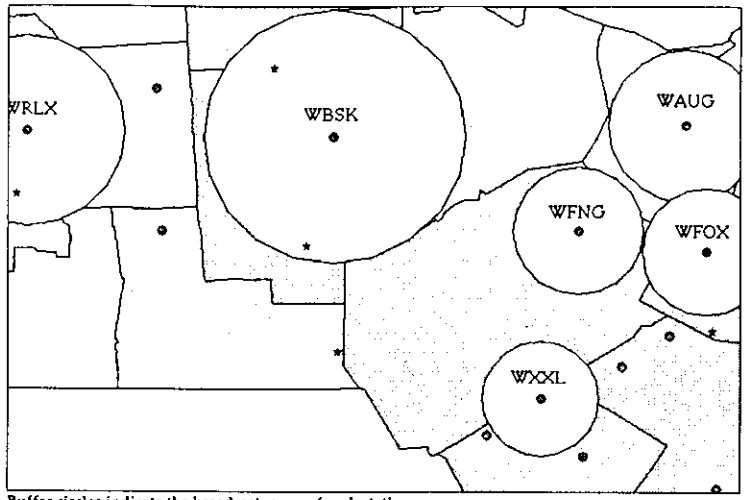
Join the demographic information supplied by each station to the broadcast area shown on your map. Now you can click on any point within that area and see all the demographic information: the age and income distributions of the station's listeners, and the times of day when particular age and income groups are tuned in, for example.



New York county map, shaded according to population of males 35 years or older

Even better, ask MapInfo to cross-check the radio stations that reach your best customers with the areas where that population is highest. Fill the broadcast areas of those stations with cross-hatching.

Look at the map and choose the stations that reach your best customers in the areas where you have the most locations. Your best bets are green-shaded circles in cross-hatched areas. When you've chosen the stations you want to use, click the Info tool on them again to see the time of day your target market is listening. Now you know when to purchase air time as well as where.



Buffer circles indicate the broadcast range of each station

You can save this map and use it for future planning. For example, it can help you spot a good location for a new tire center or coordinate radio advertising with direct marketing. Do you want to increase advertising in key areas of the state? You can use the MapInfo layout window to prepare a visually exciting and informative presentation that features this map along with graphs and tables.

As you become better acquainted with MapInfo, you will find that its applications are limited only by your imagination.

Chapter 2 Tables, Windows and Workspaces

North America map using a Lambert Conformal Conic (North America) projection

This chapter provides important general information about working with tables, windows, and workspaces. You will need to know this information in order to set up and work with your data. This chapter includes:

- What is a Table?
- How Files Make Up A Table
- How Can You View a Table?
- Opening Tables
- Copying and Renaming Tables
- Workspaces

What is a Table?

If you have never worked with a database package before, the difference between files and tables can be confusing. Even if you have used a database package before, the two terms are often used interchangeably.

Your files consist of a **structure**. The structure is how the data is organized. For example, if your data is in an Excel or Lotus 1-2-3 spreadsheet, the structure is how the data is organized into rows and columns. If your data is in ASCII format, the structure is how the data is separated by delimiters.

When you open your data file in MapInfo, MapInfo creates a table. This table consists of at least two separate files. The first file contains raw data. The second file contains the structure of the data.

How Files Make Up a Table

A table can consist of two or more files, depending on what kind of data the table contains. All MapInfo tables will have the following two files:

somefile.tab: This file describes the structure of your table. It is a small text file describing the format of the file containing your data.

somefile.dat or somefile.wks, xls: These files contain your tabular data. If you are working with a dBASE/FoxBASE, delimited ASCII, Lotus 1-2-3, or Microsoft Excel file, your MapInfo table will consist of a .tab file and your data or spreadsheet file.

Your data may also contain graphic objects, such as a DXF file. In Chapter 4, you will learn how to assign X and Y coordinates to your data records so you can display them on a map. Once you assign X and Y coordinates to you data records, your table will also consist of graphic objects. If you have graphic objects in your table, you will have two more files associated with the table:

somefile.map: This file describes the graphical objects.

somefile.id: This file contains an index which allows MapInfo to find objects on the map quickly.

Your table can also consist of an index file. The index file allows you to search for map objects using the Find command. If you want to locate an address, city, or state using the Find command, those fields must be indexed in your table. The index is located in:

somefile.ind

Opening Tables and Files

In order to work with your data, you must first open the file or table that contains the information that you want to work with. To open the table, choose Open from the File menu.

What you enter in the Open File dialog depends on the following:

- Are you opening an existing MapInfo table?
- Are you bringing your data into MapInfo for the first time?
- What views, if any, do you want to open for this table?

Opening an Existing MapInfo Table

Simply select the appropriate table. Note that although a MapInfo table consists of two or more component files (states.tab, states.dat, states.map etc.), only the .tab file appears in the File Name box of the Open File dialog. It is the only file you must open.

Bringing Your Data Into MapInfo

When you bring data into MapInfo for the first time, you need to specify the format it is in. For example, if your data is in Delimited ASCII format, select Delimited ASCII from the File Format pop-up.

Notice that when you select a particular file format, the File Name box will only list files that have the corresponding extension. For example, if you select Delimited ASCII from the File Format pop-up, MapInfo will only list files that are in Delimited ASCII format.

Select the appropriate file. MapInfo creates a table structure for that data. When you open the table in future work sessions, MapInfo will treat these files as if they were in MapInfo's native format. You will no longer need to specify a file format. If you accidently attempt to open the file again with its original file format, MapInfo gives you the error message:

Table definition already exists. Overwrite it?

This message displays because MapInfo has already created a table for that file. Press Cancel and open the associated .tab file.

Specifying What View You Want

You can specify which view of the data you want open with the Windows to Use section of the Open File dialog. MapInfo gives you three options:

- Mapper: MapInfo opens a map of the data. If you select this option and there are no graphic objects attached to the table you are opening, MapInfo displays a blank map.
- Browser: MapInfo opens a spreadsheet-style Browser of the data.
- Add to Current Mapper: MapInfo opens the table and displays it as the top layer in the currently active Mapper. For example, you have a table which contains a map of Boston streets. You want to add a table which contains a map of historical landmarks. Select Add to Current Mapper when you open the landmarks table and MapInfo will display the landmarks on the same map as the Boston streets.

If no Mapper is currently open and active, this option is grayed out.

You can open more than one view at the same time by checking any or all combinations of options. For example, if you check both Mapper and Browser under Windows to Use, MapInfo opens both a Mapper and a Browser.

You are not required to open a view of the table when you open the table. Simply open the table with no options checked under Windows to Use.

How Can You View a Table?

Once you have opened your table in MapInfo, you can view your table in four different formats: Browser, Mapper, and Grapher. MapInfo displays these views in *windows*. Once you have displayed a table in any of these window types, you can show the window in a Layout.

It is important to remember that the Browser, Mapper, and Grapher are merely different views of your data. When you have more than one view open on a table, you are seeing the same underlying data expressed in two or more different ways. A Mapper and a Browser of the same data is comparable to a photograph and an X-ray.

Browser

Browsers allow you to view and manipulate your data in traditional row and column form, typically used in spreadsheets and databases. Each column contains information about that particular field, such as name, address, phone number, cable ID number, or order amount.

WORLD Browser

Country	ProperName	Capital	Population
Bangladesh	People's Republic of Bangladesh	Dhaka	109963551
Belgium	Kingdom of Belgium	Brussels	9880522
Belize	Belize	Belmopan	171735
Benin	People's Republic of Benin	Porto-Novo	4497150
Bhutan	Kingdom of Bhutan	Thimphu	1503180
Bolivia	Republic of Bolivia	La Paz/Sucre	6448297
Botswana	Republic of Botswana	Gaborone	1189900
Brazil	Federative Republic of Brazil	Sao Paulo	150685145
Bulgaria	People's Republic of Bulgaria	Sofia	8966927
Burkina Faso	Burkina Faso (formerly Upper Volta)	Ouagadougou	8485737
Burma	Socialist Republic of the Union of Burma	Rangoon	39632183
Burundi	Republic of Burundi	Bujumbura	5155665
Cameroon	United Republic of Cameroon	Yaounde	10531954
Canada	Canada	Ottawa	26087536
Central African	Central African Republic	Bangui	2736478
Chad	Republic of Chad	N'Djamena	4777963
Chile	Republic of Chile	Santiago	12638046
China	People's Republic of China	Peking	1088169192
Colombia	Republic of Colombia	Bogota	31298803
Congo	People's Republic of the Congo	Brazzaville	2153685

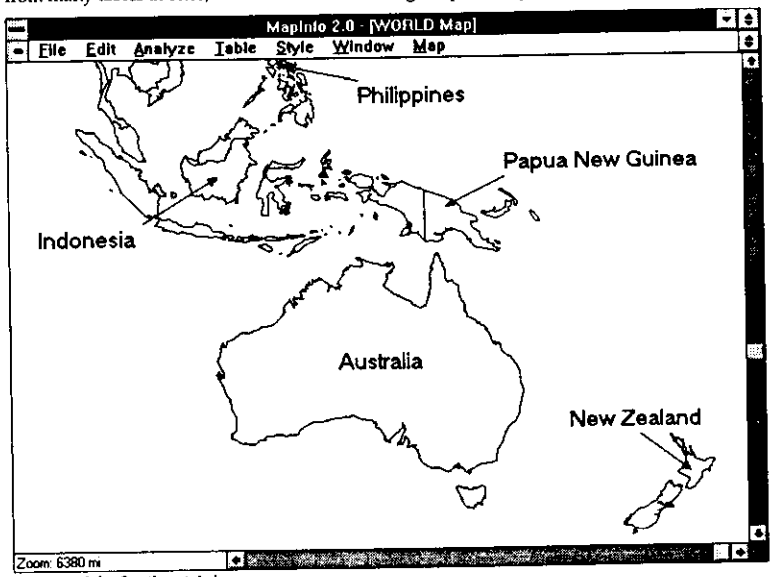
records 10 - 29 of 146

Browser of the World

You can edit records in your table, copy records, add new ones or delete existing records. You can open a Browser directly through the Open File dialog or by selecting Browse... from the Window menu.

Mapper

Mappers display the geographic objects in your table. Mappers can display information from many tables at once, with each table becoming a separate layer in the Mapper.

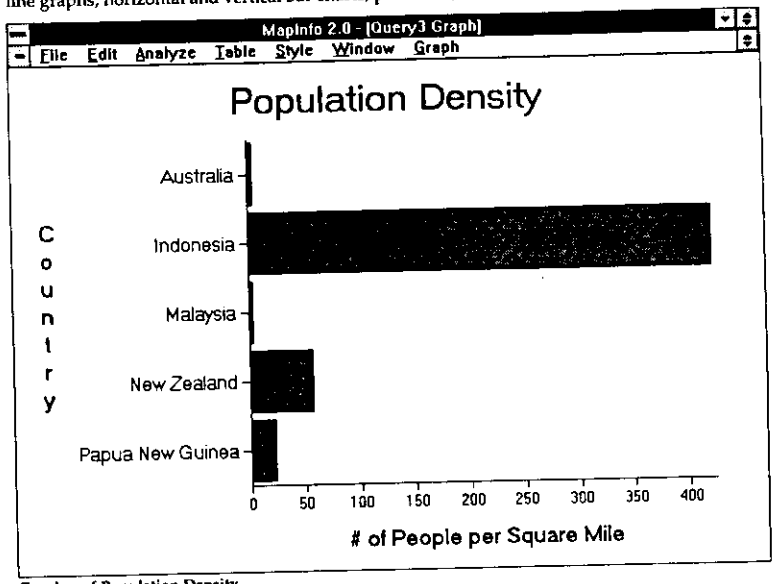


Mapper of the Southeast Asia

You can create your maps or edit existing maps. You can open a Mapper directly through the Open File dialog or by selecting Map... from the Window menu.

Grapher

The Grapher allows you to visualize statistical relationships in chart format. You can create line graphs, horizontal and vertical bar charts, pie charts, and scatter charts.

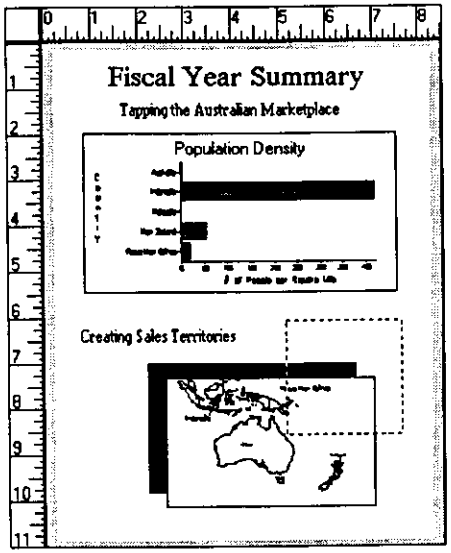


Grapher of Population Density

You can open a Grapher by selecting Graph from the Window menu.

Layout

The Layout Window allows you to combine Browsers, Mappers, Graphers, and other graphic objects into one layout which can then be outputted to a printer, plotter, or file.

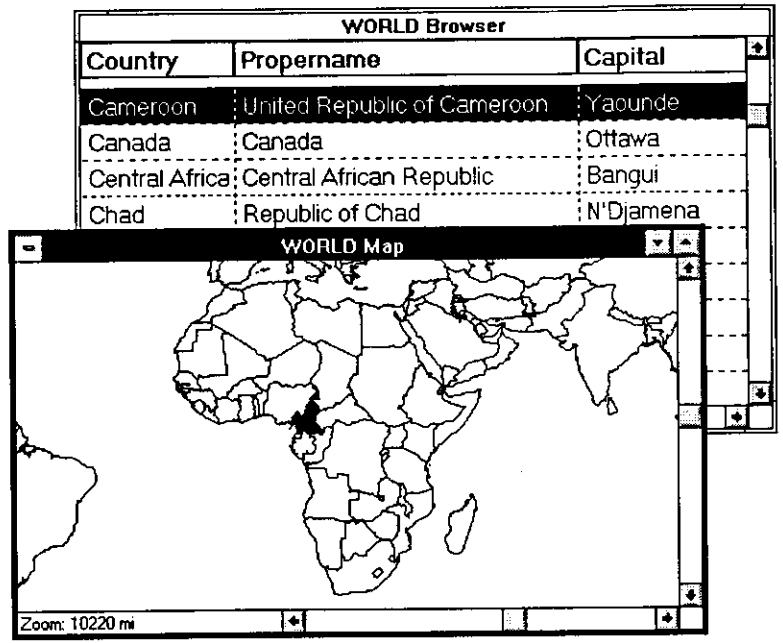


Layout Window

Hot Views

A table can be displayed in many different windows with different views. You can view a Mapper of the World (country boundaries) and a Browser of the World (the names of the countries, their population, and any other data that you had on the countries) at the same time. With MapInfo's Hot Views technology, any changes that are made to one view of the data are automatically made to any other view of the data.

For example, you might have a Mapper and a Browser of the world. If you select Cameroon in the Mapper, MapInfo highlights Cameroon in both the Mapper and the Browser.



MapInfo's Hot Views capability

Closing Tables

Closing a table means removing it from active use in your current session. Choose the Close command from the File menu to close tables. When you close a table, you automatically close all views of that table. If you close a table which is displayed in a Mapper with other tables, MapInfo removes that table from the Mapper (but the Mapper remains open).

In addition, any subset tables of the original table (known as query tables) also close. You can use the Close command for any table, whether or not it is displayed in a window.

Opening and closing *tables* is different from opening and closing *windows* in which you view your tables. You can open a table without opening any views of the data. Similarly, closing a window does not close the table (or tables) you are viewing in the window. They are still open and available for use. To close a window, click the Control-menu box in the upper-left corner of any window and select Close.

If you have made changes to a table but have not yet saved those changes, MapInfo will ask you whether or not you want to save them before closing the table. To save your changes, choose Save from the File menu.

Copying & Renaming Tables

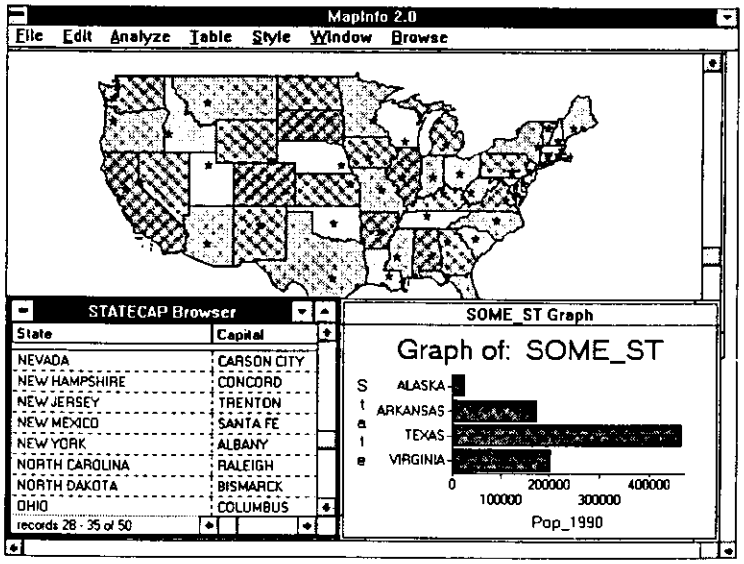
Because a MapInfo table consists of two or more component files (states.tab, states.dat, states.map etc.), all of these files for a particular table must be in the same directory. If you move any of the component files to a different directory, move all of them. When you want to back up a table to diskette, you must back up all of the component files.

Because each table has at least two files associated with it, you cannot change one file name without changing all the other associated file names. Otherwise, MapInfo would not know where to find all the files that constitute the table. Therefore, do not use a DOS copy command to rename files.

To rename a table, use the Rename Table command in the Table menu. When you rename a table using this command, MapInfo also renames all associated files. If your table is part of a workspace, see How Renaming a Table Can Affect a Workspace in this chapter.

Workspaces

When you work with MapInfo you generally use many different tables and windows. Opening many tables and windows can take some time. MapInfo allows you to preserve your setup from session to session so you don't have to start from scratch. For example, a Mapper is likely to be built of many layers. You do not want to have to re-assemble these layers for each new work session.



MapInfo Workspace

MapInfo uses *workspaces* to preserve your setup from session to session so you don't have to start from scratch. As you work, the system keeps track of all the tables and windows you are using. At the end of your session, you can have MapInfo save your setup as a workspace. When you start your next session, you can open this workspace and continue where you left off.

The workspace is a list of all the tables and windows you are using, stored in a file with the extension .wor. The workspace keeps track of what windows you have open, the size of the windows and their position on the screen, and styles for fonts, symbols, lines, and fill patterns used to display objects.

```
!Workspace
!Version 200
Close Window ToolPicker
Open Table "q:\pubs\data\states" As STATES Interactive
Open Table "q:\pubs\data\statecap" As STATECAP Interactive
Open Table "some_st" As SOME_ST Interactive
Map From STATECAP,STATES
  Position (-0.200333,-0.210750) Units "in"
  Width 6.409583 Units "in" Height 2.700333 Units "in"
Set Map
  CoordSys Earth Projection 1, 0
  Center (-96.258151,30.106991)
  Zoom 4500.000000 Units "mi" Preserve Zoom Display Zoom
  XY Units "degree" Distance Units "mi" Area Units "sq mi"
  Layer 1
    Display Graphic
    Label Line None
      With State
      Parallel  on
  Layer 2
    Display Graphic
    Label Line None
      With State
      Parallel  on
Browse * From STATECAP
  Position (0.020833,2.229167) Units "in"
  Width 2.864583 Units "in" Height 1.895833 Units "in"
  Row 20 Column 0
```

A workspace is a list of tables, views, and relative positions in the window

Saving Your Workspace

To save your current work setup, choose Save Workspace As in the File menu. MapInfo displays a dialog in which you name the workspace and set the directory to which it should be saved.

If you have edited a table (added, deleted, or modified items) you must explicitly save those changes using Save As or Save commands in the File menu. **Saving a workspace will not save edits you have made to tables in the workspace.**

Adding (Opening) a Workspace

To open a workspace, choose Add Workspace in the File menu. Choose the appropriate workspace from the list provided. All the tables that were saved in the workspace will open and appear in the windows you were using when you saved the workspace.

If you are already working with data in various windows, adding a workspace will add the workspace to your current setup. This can be very useful if you have files and windows in several workspaces to be analyzed. You can save this entire complex; the workspace you added plus the material you added it to, by saving it as a new workspace.

Use the Close All command to close all tables and windows. For more information about opening workspaces, see sections Add Workspace and Preferences in the MapInfo *Reference Manual*.

How Renaming a Table Can Affect a Workspace

You can sometimes invalidate a workspace by changing the name of a MapInfo table that appears in that workspace. Table names are stored in the workspace file. If you change the name of the table, the workspace does not know how to find it.

For example, you might create a workspace called customer.wor, which contains the states table. If you later rename the states table to *america*, MapInfo would not be able to open the customer.wor workspace. It would try to open the states table and not be able to locate it.

There are two ways to avoid this problem:

- Make any table name changes before you start to build workspaces.
- Open the workspace table in any text editor and manually change the list. Since a workspace is merely a list of all tables and windows that are used in a given session, it is relatively simple to edit the list. Using the example above, you would open the workspace in a text editor and replace states with america.

Leaving MapInfo—The MAPINFOW.WOR Workspace

To leave MapInfo, choose Exit from the File menu. If there are any tables open that have been edited, MapInfo asks if you want to save them. You can choose to either save them or exit and lose those changes.

Two options in the Edit > Preferences menu allow you to automatically save your work session setup to a workspace when you exit and display that setup when you enter MapInfo again. To save your setup to the workspace, check the Save "MAPINFOW.WOR" option. To display mapinfow.wor when you enter MapInfo, check the Load "MAPINFOW.WOR" option.

Chapter 3 Mapping in Layers

World map using a Mollweide (Equal-Area) projection

This chapter describes the relationship of tables and maps and how they are layered to create the level of detail you want.

This chapter includes:

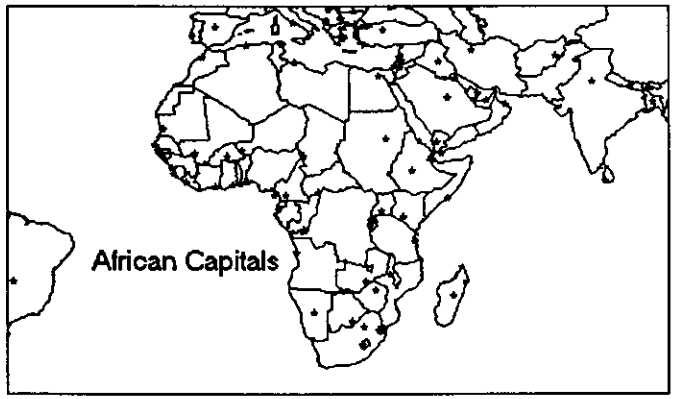
- Preparing to Map in Layers
- General Procedures
- What is the Cosmetic Layer?
- Customizing How Layers Display

Preparing to Map in Layers

Maps as Layers

Tables which have graphic objects associated with its records can be displayed in a Mapper. You can display one, two, or many tables in one Mapper. For example, you may have a table of customers, a table of streets, and a table of county boundaries. You could display all three tables in one Mapper.

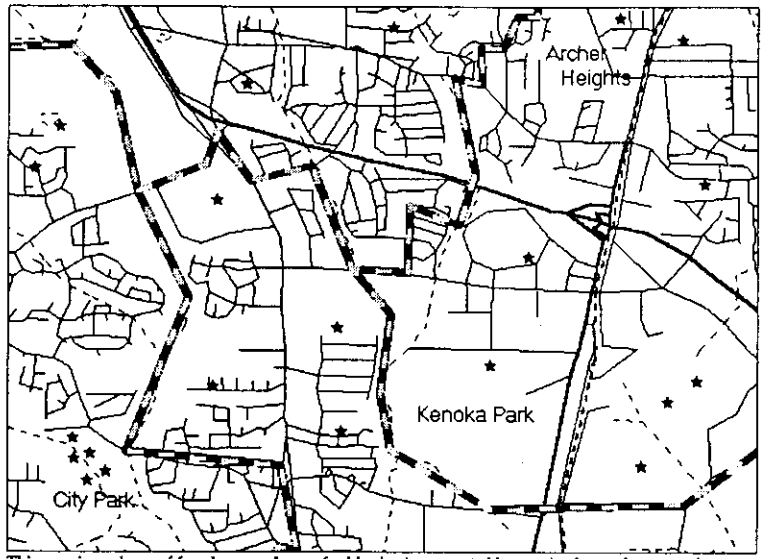
Think of tables as layers. When MapInfo displays a table in a Mapper, that table is a layer. These layers are similar to transparencies (Mylar overlays). Each transparency consists of a different aspect of a map. For example, one transparency may contain country boundaries, a second transparency may have symbols that represent capitals, a third layer might consist of some sort of text. By laying these transparencies one on top of the other, you begin to build a complete map.



This map of Africa consists of three layers; a layer of country boundaries, a layer of African capitals, and a layer of text.

Once you have geographic locations associated with the records in your database, you can open your table as a Mapper or add it to an existing Mapper.

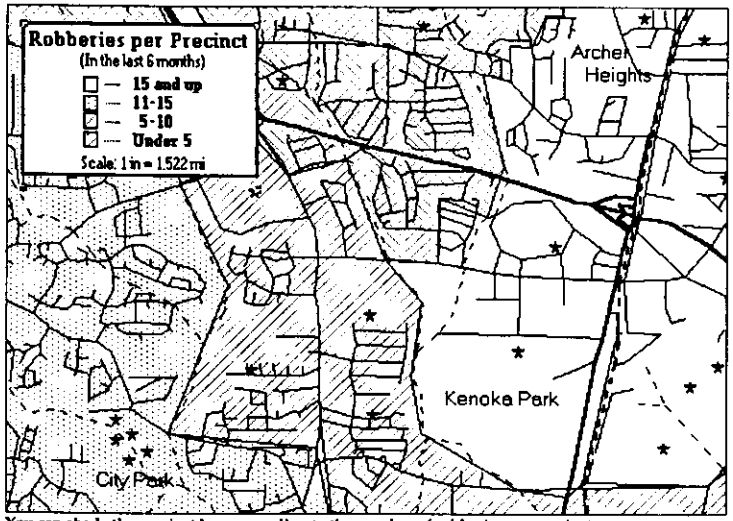
For example, a police officer has a table of robberies that includes the location of each robbery, the time of day the robbery occurred, and the kind of items that were stolen.



This map is made up of four layers; a layer of robberies (represented by stars), a layer of streets, a layer of precinct boundaries, and a layer of text.

After assigning geographic coordinates to each record (a process known as *geocoding*, which we will discuss in the next chapter), the police officer displays the table in a Mapper. She also displays a table of city streets and table of police precincts in the same Mapper.

She can now see how many robberies occurred in her precinct just by counting how many symbols appear within the precinct boundary (or by having MapInfo count them for her). MapInfo can thematically shade the precinct boundaries according to the number of robberies per precinct.



You can shade the precinct layer according to the number of robberies per precinct.

The point markers for the robberies can also be shaded. Different colors or symbols for the point markers can be used to indicate the time of the robberies — orange markers represent morning robberies, blue markers represent afternoon robberies, and green markers represent evening robberies.

General Procedures for Creating a Mapper

If you want to create a Mapper consisting of two layers (a layer of customers and a layer of states, for example), you could do it in one of three ways:

1) Choose Open from the File menu. Open the states table with the Mapper option checked in the Windows to Use section of the dialog. Choose Open File from the File menu again. Open the customers file with the Add to Current Mapper option checked in the Windows to Use section of the dialog.
2) Open both the states file and the customer file, but do not check any of the Windows to Use options. Choose Map from the Window menu. Using the menus, select customers for the first layer and states for the second layer.

   MapInfo draws the layers in the order you list them here, with the layer on the bottom of the list drawn first. Therefore, we recommend that you list the point-based layers first and the boundary-based layers second so that the boundaries do not cover up the points.
3) Choose Open File from the File menu. Open the states file with the Mapper option checked in the Windows to Use section of the dialog. Choose Open File from the File menu again. Open the customers file with no options checked in the Windows to Use section of the dialog.

   Now choose Layer Control from the Map menu. You will see that the Mapper currently consists of the states layer and the Cosmetic Layer, which is part of every Mapper and is always the top layer (we will discuss the Cosmetic Layer in the next section). Press the Add button and select the customers layer from the pop-up.

Note: You cannot add a layer to a Mapper unless the corresponding table is open.

Reordering Layers in a Mapper

Map layers display in the order that they are listed in the Layer Control dialog, with the bottom layer drawn first and top layer (which is always the Cosmetic Layer) drawn last. It is important to order your layers correctly.

For example, you have a layer of customer points and a layer of states. If the layers are incorrectly ordered in the Mapper, MapInfo might draw the customer points first and then display the states layer second. Your points might be obscured by the states layer.

You can reorder how layers are displayed in a Mapper by using the Reorder buttons. Remember, the Cosmetic Layer is always the top layer in the Mapper. Reordering has no effect on the Cosmetic Layer.

Making a Layer Editable or Selectable

When you make a layer editable, you can make changes to the graphic objects associated with that table. You can draw objects in that layer, add text, merge boundaries, or delete objects. Only one layer per Mapper can be editable at one time.

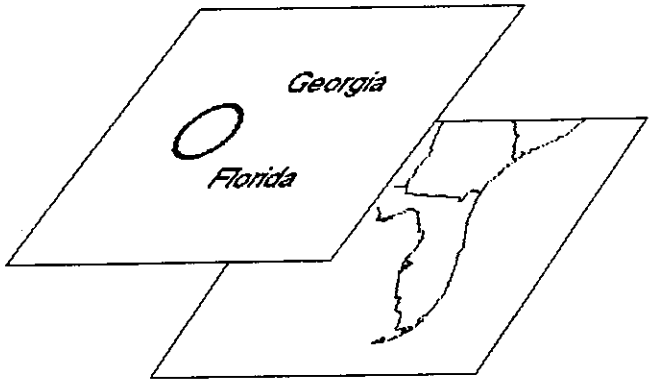
If you make your layer selectable, you can select objects which can be used for other analyses. You can also use the Info tool and Label tool on objects in a selectable layer. You cannot, however, make changes to the graphic objects associated to that table unless the table is also editable.

For example, you want to find all customers who live within a fifty mile radius of Boston. To create this subset, the customer layer must be Selectable. Conversely, if the map also included a layer of hospitals (which you did not want to include in the radius search), you would turn off the Selectable option for the hospital layer. Unlike the editable option, any or all layers in your Mapper can be selectable.

To make a Mapper layer editable or selectable, double-click on the layer in the Layer List box or single-click on the layer and press Settings. This brings up the Layer Settings dialog. Use the options under Edit Control to make the Mapper editable and/or selectable.

Keep in mind that the editable or selectable options only apply to the Mapper, itself. You can always select objects using the Select or SQL Select commands regardless of whether a layer is Selectable or not.

What is the Cosmetic Layer?



Use the Cosmetic Layer to add labels and drawings to your Mapper

Every Mapper you create will include a Cosmetic Layer. Think of the Cosmetic Layer in the context of transparencies. Each transparency (or layer) consists of a different aspect of a map. The Cosmetic Layer is the blank transparency that lies on top of the other transparencies. It is used for drawing. It stores labels, map titles, and other graphic objects. The Cosmetic Layer is always the top layer of the map.

To clear objects from the Cosmetic Layer, choose Clear Cosmetic Layer from the Map menu. If you want to save the contents of the Cosmetic Layer into a permanent layer, choose Save Cosmetic Objects from the Map menu. You can either transfer the objects in the Cosmetic Layer to an existing layer on the map, or create a new layer. For more information on creating new layers, see the New section from the MapInfo *Reference Manual*.

Five Facts About the Cosmetic Layer

The Cosmetic Layer is always the top layer of the Mapper.

You cannot remove the Cosmetic Layer from the Mapper. You cannot reorder the Cosmetic Layer.

The Cosmetic Layer is NOT automatically saved when you close a map window.

If you want to save labels or objects drawn to the Cosmetic Layer, you must explicitly save them using the Save Cosmetic Objects command.

You can only make the Cosmetic Layer Editable or Selectable.

Access the Cosmetic Layer's Settings dialog in the same way that you would any layer. The definitions of Editable and Selectable are the same for the Cosmetic Layer as they are for any other layer.

Other options (labeling, zoom layering, display mode) are not available for the Cosmetic Layer. To select fill patterns, line types, symbols, and text font for the Cosmetic Layer, use the commands in the Style menu.

MapInfo always draws labels and Autolabels to the Cosmetic Layer.

The Cosmetic Layer is similar to other layers in that the layer must be editable if you want to draw to it. However, there is one exception. MapInfo draws all labels and autolabels to the Cosmetic Layer, regardless of what layers are editable. Keep in mind that you cannot edit the labels in a non-editable Cosmetic Layer. You cannot change the font, point size, or style of labels unless you make the Cosmetic Layer Editable.

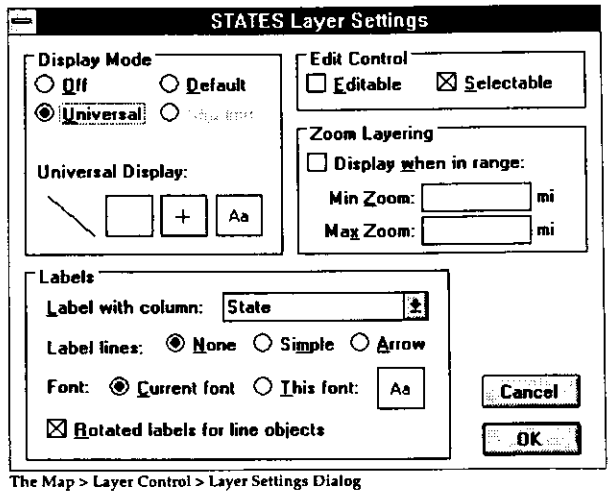
To clear the labels from the Cosmetic Layer, select Clear Cosmetic Layer from the Map menu.

The contents of the Cosmetic Layer are linked proportionally to the map.

With the exception of symbols, objects or text in the Cosmetic Layer are proportionally linked to the zoom level of the map. If you draw labels or other objects in the Cosmetic Layer and then change the map's zoom from 30 to 100 miles, the size of the labels and objects will appear smaller.

Customizing How Layers Display

You can customize the display for each layer in a Mapper. These options are found in each layer's Layer Setting dialog. To access this dialog, double-click on the layer in the Layer List box. You can also access this dialog by single-clicking on the layer in the Layer List box and pressing the Settings button.



The Map > Layer Control > Layer Settings Dialog

Display Mode

When you first open a Mapper, boundaries, lines, points, and text are all displayed with defaults in the map file. You can change how objects are displayed in the Mapper by using the Display Mode section of the Layer Settings dialog. There are four display modes:

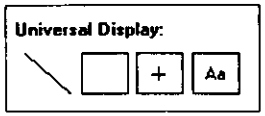
Off: MapInfo does not display the layer

Default: MapInfo displays map objects using the preset defaults

Universal: MapInfo displays all objects using the fill pattern, line type, symbol, and text style displayed in the Universal Display icons.

Shading: MapInfo displays map objects using the results from thematic shading (for more information on thematic shading, please see Chapter 6).

You can create your own custom display by clicking on the appropriate Universal Display icon and changing the setting. There are four icons: Line (diagonal line), fill (empty square), symbol (small cross), and text (upper-case and lower-case letter A).



For example, you have a layer of streets. You want the streets to display as dashed red lines. Click on the Universal Display line icon and MapInfo displays the Pick Line dialog. Select the color red from the Color palette and a dashed line pattern from the line type pop-up. When you return to the Layer Settings dialog, the Universal Display line icon displays a red dashed line. All line segments (including streets) associated with this layer will display as red dashed lines.

It is important to remember that borders are part of boundaries and are controlled through the fill icon rather than the line icon. For example, you have a layer of county boundaries. You want the borders to display with thicker lines. Click on the **Fill icon** (not the line icon). MapInfo displays the Fill Picker.

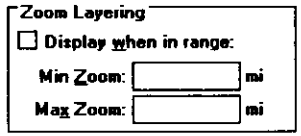
To change the borders of boundaries, you check the Line option in the Fill picker. MapInfo displays the contents of the Pick Line dialog. Use the thickness picker to select a border thickness. When you return to the Layer Settings dialog, the border of the Universal Display Fill icon displays that line thickness.

The text icon in the Universal Display section of the dialog controls objects created with the Text tool, not objects created with MapInfo's labeling techniques (the Label tool, the Draw Autolabels dialog). To customize which fonts and point sizes MapInfo uses to label objects in a map layer, use the Labels section of the Layer Settings dialog.

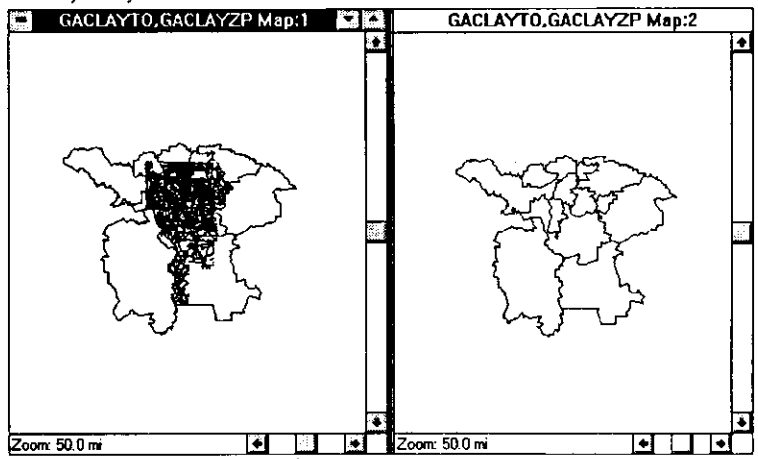
Zoom Layering Your Map Layers

Sometimes you want a map layer to display only at certain zoom levels. *Zoom Layering* is the process of having a map layer display only when the map's zoom level falls within a preset distance.

For example, you have a layer of streets and a layer of county boundaries. When you zoom out past 25 miles, the streets look like a black smudge in the window. This is because the zoom level is too wide to show detailed street maps.



Use the Zoom Layering section of the Layer Settings dialog to tell MapInfo to display the street layer only when the zoom level is less than 10 miles across.



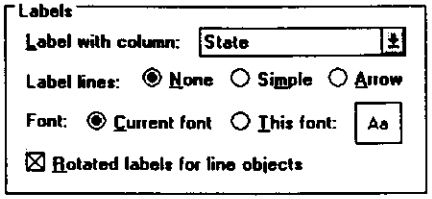
Two identical maps zoomed out to 50 miles.

In the above illustration, the first map doesn't have zoom layering set for its street layer. Notice how difficult it is to make out any detail. The second map has zoom layering set for its street layer. The display for the street layer is turned off at this zoom level.

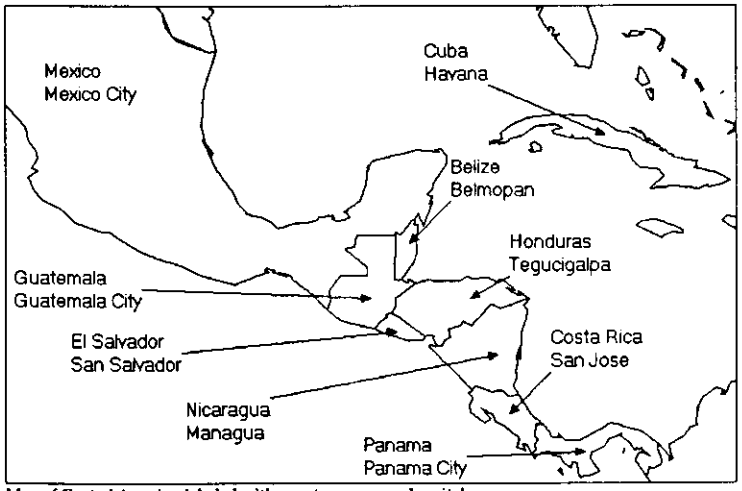
Different layers in the same Mapper can have different zoom layering levels. For example, you have a layer of streets, a layer of county boundaries, and a layer of state boundaries. You want the streets layer to be visible only when the zoom level is less than 8 miles. You want the county boundary layer to display when the zoom level falls between 20 miles and 200 miles. You want the states boundary layer to be visible only when the zoom level is greater than 100 miles. You can set a different zoom layering level for every layer in your Mapper.

Labeling Objects in a Layer

When you label objects in a map layer, all labels are drawn in the Cosmetic Layer. However, how those labels are drawn is controlled through the Labels section of the Layer Settings dialog for that particular layer.



You can label map objects with any field from the table. For example, you have a layer of data points which represent fast food restaurants. The fields in the accompanying table include the restaurant's name, address, and phone number, the type of food that each restaurant serves, and annual revenue. You can label each restaurant point with any field from that table. Use the Label With pop-up to select which field you want to label your objects with.



Map of Central America, labeled with country names and capitals

You can also create mathematical expressions to label your map objects. For example, you have a layer of ice cream parlors. Two fields in the accompanying table include number of customers [CUSTOMERS] and annual sales [TOTAL_SALES]. Given these two fields, you could label each ice cream parlor symbol with the average amount that each customer spent.

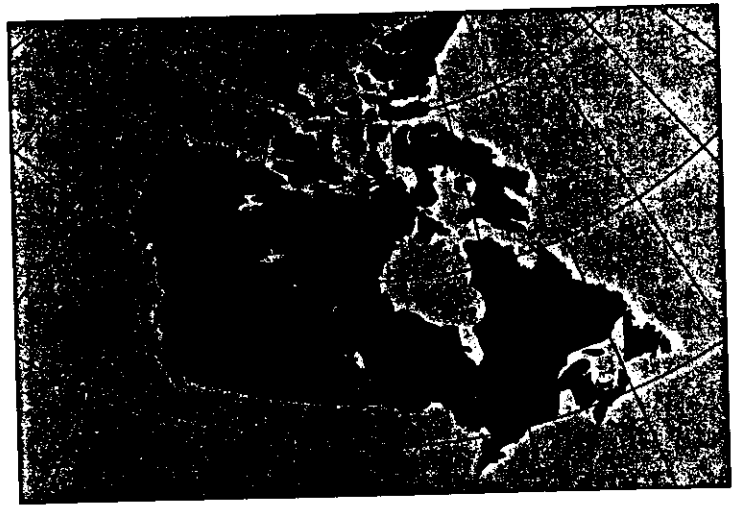
You select Expression from the Label With pop-up and use the pop-up menus to create the following expression:

TOTAL_SALES / CUSTOMERS

When you label an ice cream parlor, MapInfo computes this expression and labels the symbol with the total.

For more information on creating labels, see Chapter 7.

Chapter 4 Putting Your Data on the Map



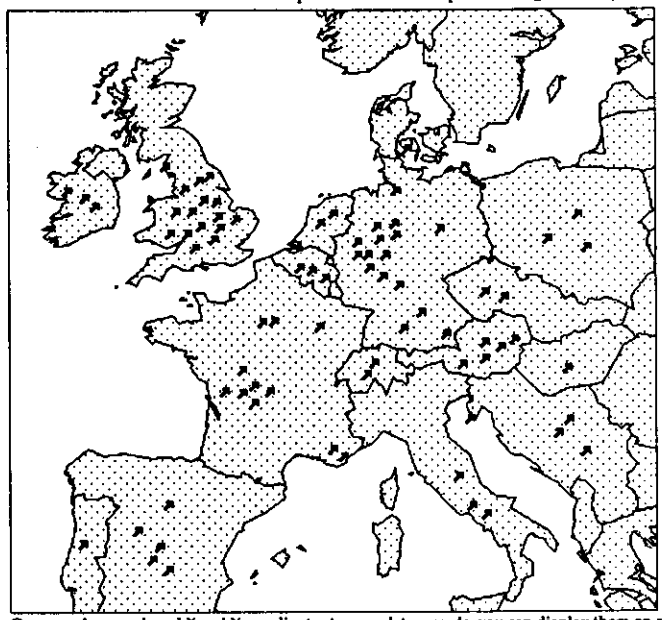
Canada map using an Equidistant Conic (North America) projection

With MapInfo, you can display your data on a map. However, before you can display your data on a map, you have to create a graphic object for each data record. There are three ways you can do this:

- Geocoding - MapInfo assigns X and Y coordinates to your records based on geographic information from another table.
- Joining - MapInfo creates a temporary linkage between your data and a map (i.e. a table which already has graphic objects).
- Creating Points - MapInfo creates graphics objects for records that already have X and Y coordinates.

Geocoding: Assigning Coordinates to Your Data Records

To display your data records on in a map, you must first assign X and Y coordinates to each record. MapInfo assigns X and Y coordinates by matching geographic information in your table to geographic information in a table (referred to as a *search table*) that already has X and Y coordinates associated with it. MapInfo refers to this process as **geocoding**.



Once you have assigned X and Y coordinates to your data records, you can display them on a map

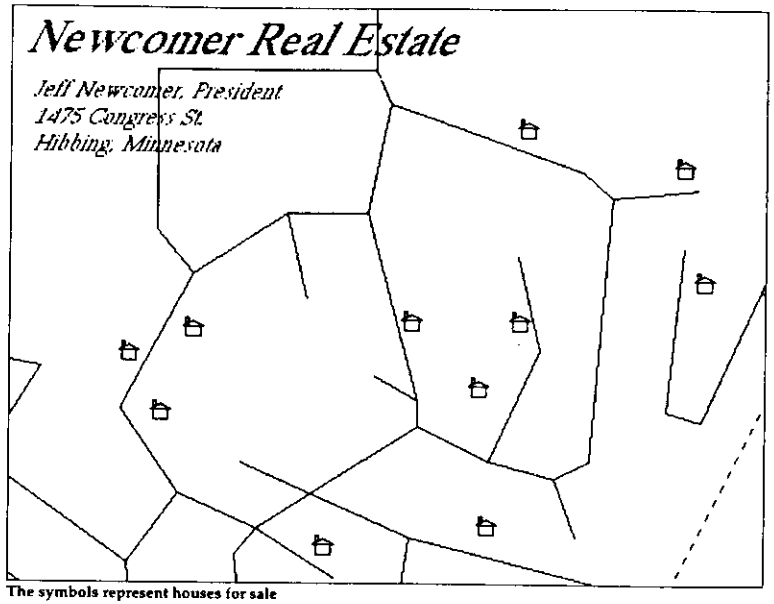
For example, you want to assign X and Y coordinates to a customer record whose address is 127 Winston Parkway. MapInfo reads that address and looks for a matching address in the search table, such as a StreetInfo table. This search table already has X and Y coordinates associated with its records.

When MapInfo matches 127 Winston Parkway in your table to 127 Winston Parkway in the search table, it assigns the corresponding X and Y coordinates to your record. The geocoded point becomes part of your database. You view these points by mapping your table.

Note: Even though MapInfo assigns X and Y coordinates to each record in your database, you cannot view these coordinates in a Browser. They are kept internal to the database.

Methods of Geocoding

Geocoding by Address



The symbols represent houses for sale

When you geocode your table with street addresses, MapInfo matches the addresses in your table to the street names and address ranges in a StreetInfo or StreetInfo-Plus table (which are sold by MapInfo) and assigns X and Y coordinates to your records.

Geocoding by Boundary (Town Boundary, State Boundary, ZIP Code Boundary)

In desktop mapping, the term boundary is used to designate enclosed regions or areas such as countries, cities, and ZIP Codes. When you geocode your table with boundaries, MapInfo matches the boundary name in your table with the boundary name in the search table. MapInfo assigns the boundary centroid X and Y coordinates to your data records. The *centroid* of a boundary is its approximate midpoint.

For example, you have a table of wholesale outlet stores. You want to assign X and Y coordinates to each record according to county. MapInfo reads the county name from your table, matches it with the county name in the search table, and assigns the county centroid coordinates to each of your records.

Geocoding by ZipInfo (ZIP Code Centroid Pointfile)

ZipInfo is a Pointfile that is included with the base MapInfo package. The file consists of ZIP Code centroid points for every ZIP Code in the United States. This file can be used to geocode any database that includes ZIP Code information.

Three Questions To Ask Before Geocoding

It is important to know your data and what you want to use it for before you select a method of geocoding.

What kind of geographic information do I have in my database?

Do you have street addresses, towns, cities, ZIP Codes, states, countries? Do you have potentially ambiguous information? For example, if you have a database of customer street addresses, will you have 125 Main Street in Smithtown and a 125 Main Street in Nassau? If so, you may have to refine your search using town boundaries or ZIP Codes.

What kind of maps do I have to work with?

You will need computerized maps that are at the level of detail that matches your data. For example, if you want to geocode a database of customers in specific counties by street address, you will need maps of the desired counties that go to street level. A map of the United States that only goes to a county level would not work for you. You can purchase the maps for your geocoding application from MapInfo or your reseller.

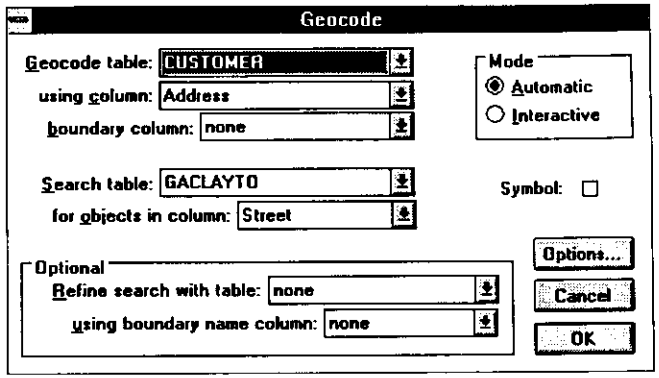
How geographically accurate does the placement of my data have to be on the map?

Taking into account the first two questions, you must decide how accurate the geocoding must be. If you are trying to pinpoint the locations of cable wires, crime scenes, or fire hydrants, a high degree of accuracy is needed. But if you are going to use your data to thematically shade ZIP Code boundaries, town boundaries, county boundaries, state boundaries, or country boundaries, you don't need a high degree of accuracy.

General Procedures for Geocoding

To assign X and Y coordinates to the records in your table, choose Geocode from the Table menu. MapInfo displays the Geocode dialog, where you enter the following information:

- The name of your table for which you want to assign X and Y coordinates
- The column in your table with the geographic information that will be used for matching
- The name of the search table with the geographic information that will be used for matching
- The column in the search table with the geographic information to match to



Geocode dialog

The dialog also offers you the option of geocoding your data *automatically* or *interactively*. When you geocode a table *automatically*, MapInfo geocodes exact matches only and ignores all other records. This is the faster method, since MapInfo requires no user interaction once the geocoding process begins. When you geocode a table *interactively*, MapInfo pauses when it fails to match a record and lets you select from a list of close matches.

We recommend that you geocode your table automatically first and then go back and geocode interactively to match the remaining records.

Geocoding Troubleshooting: Approaching the 100% Hit Rate

MapInfo can rarely assign X and Y coordinates to all of your records on the first try. It is not uncommon to have a geocoding hit rate of under 50% on your first attempt. The information in your database may not exactly match the information in the search table. MapInfo-based maps are updated regularly, but may not include the most recent changes (new subdivisions or ZIP Code boundaries).

Other problems may occur. The abbreviations that you use in your table may not match the abbreviations that MapInfo recognizes. For example, the records in your table may use abbreviations like Circ. for Circle and Pl. for Plaza. MapInfo recognizes Cir. for Circle and Plz. for Plaza. How do you geocode these records?

That is why MapInfo gives you the option of geocoding your database interactively. There are a number of methods for geocoding records that don't have an exact match. The following is a list of potential geocoding pitfalls and how to avoid or rectify them.

Spelling errors in your data records

If the information in your database does not exactly match the information in the search table, MapInfo ignores that record when geocoding automatically.

If you are geocoding interactively, MapInfo gives you a list of close alternatives. Use the Up and Down buttons to scroll through the list. Choose the correct alternative. If the correct alternative is not listed, press Ignore.

Keep in mind that MapInfo looks for exact matches. Lasalle St and La Salle St are not exact matches. Nor are Main St and Maine St.

MapInfo generates its list of close alternatives alphabetically. For example, if MapInfo cannot find Booker St. in its database, it will generate a list of alternatives that are close to Booker St. alphabetically (Bookman St., Brooker Ave., Brooks St.). However, if the spelling error occurs in the first letter of the address (Booker St. should really be Zooker St.), you will either have to use the Up and Down keys to scroll to the correct spelling or type in the correct spelling directly.

Incorrect address number in your data records

If your record has an address number that does not match the one in the table you are matching against, MapInfo skips the address in Automatic geocoding and gives you a list of known address ranges in Interactive geocoding. Select the closest address range from the list or press Ignore to ignore the record.

You can also have MapInfo select the closest address from the list automatically. Select Options in the Geocode dialog. MapInfo gives you the option of assigning the closest address number when an exact match cannot be found.

Incompatible abbreviations

If you geocode automatically and find that you have an extremely low hit rate, your database of street addresses may use abbreviations that MapInfo does not recognize. For example, all of your records might use Str as the abbreviation for Street. MapInfo, on the other hand, uses the abbreviation St for Street. Another example: Your database contains addresses that spell out the street numbers (127 Fourteenth St). while MapInfo's table uses the numbers (127 14th St).

```
FIRST    1ST
SECOND   2ND
THIRD    3RD
FOURTH   4TH
FIFTH    5TH
SIXTH    6TH
SEVENTH  7TH
EIGHTH   8TH
NINTH    9TH
TENTH    10TH

NORTH  N
SOUTH  S
EAST   E
WEST   W

ALLEY      AL
AVENUE     AV
AVE        AV
BOULEVARD  BLVD
BRIDGE     BR
COURT      CT
DRIVE      DR
EXTENSION  EXT
```

Partial Abbreviation File

Instead of editing all your records, you can change which abbreviations are recognized. There is an abbreviation file (mapinfo.abb) which you can modify so that MapInfo will recognize your abbreviations.

Ambiguous address produces more than one location

You are geocoding a database of records in Cook county, Illinois. The address in the database reads 200 Washington St. Within the county of Cook, there are eight towns. Four of these towns have a Washington St. Three of the four have a 200 Washington St. How do we geocode this record?

By refining our search with a boundary, you are giving MapInfo more information by which to make a correct match. For example, if your data has both addresses and town names, you can tell MapInfo to search for a street address and a town boundary. MapInfo could then differentiate between 200 Broadway in Chicago and 200 Broadway in Urbana.

To refine a search, select the column in your table that contains boundary information (TOWN, CITY, ZIPCODE). Next, select a MapInfo table that also contains that boundary information you need. If you purchased your county street map from MapInfo, two of the files included are filename.tab, which contains the street information, and filename_.tab, which contains the town boundaries for that county. You can use this file to refine your search.

When refining your search, it is sometimes better to use ZIP Codes rather than town boundaries. Town boundaries tend to fluctuate more than ZIP Code boundaries. Furthermore, town boundaries are subject to regional interpretation.

For example, the town of West Seneca, New York is broken up into different subsections or townships. These townships are based on 19th century town boundaries and are not included in the Erie County, New York street map. However, many people still use these township titles as their town address. Using ZIP Code boundaries may alleviate this problems.

Another way to alleviate this problem is to tell MapInfo to use a boundary to refine your search, but search different boundaries if it cannot find a match within that boundary. Select Options in the Geocode dialog. MapInfo gives you the option of searching in a different boundary when an exact match cannot be found.

Note: Keep in mind that you cannot use the ZipInfo file for refining your search. Searches can only be refined using boundaries.

For more information on refining your search with a boundaries, see Geocode in the MapInfo *Reference Manual*.

A Note on Geocoding Interactively

When you geocode interactively and select any of the preceding options, YOU ARE NOT CHANGING THE DATA RECORD. You are merely redirecting MapInfo to look for different information.

For example, your data record reads Cherryville St. When you geocode automatically, you find that the data record should read Cherry Vale St. You select Cherry Vale St from the list of alternatives. Although MapInfo assigns X and Y coordinates to that record, you have not altered the record in any way. To change the spelling in the database, you must edit the record in a Browser.

Using Result Codes

You can also create a field into which MapInfo writes a result code for each record in your geocoded table. A result code is a number indicating what steps were taken to match the record or why the match failed. You can use these result codes to search for different types of geocoding problems. For more information on return codes, see the Appendix, "Advanced Geocoding Techniques", in the MapInfo *Reference Manual*.

Ungeocoding

Ungeocoding is the process of removing objects that have been attached to data records. For example, you have geocoded a database of customers using ZipInfo. Later, you want to geocode the database again, using street addresses instead of ZIP Code centroids. MapInfo allows you to delete all graphic objects associated with this table. You can then geocode your database again, using more specific coordinates.

To ungeocode your records, choose the Modify Structure command from the Table menu. Uncheck the box next to Associate Graphic Objects with Records. MapInfo removes all associated graphic objects from this table. You can then geocode the table again, with new geographic information.

Another way to ungeocode your data is to display your table in a Mapper, select the points that you want to ungeocode, and choose Clear Objects Only from the Edit menu.

Make sure that you don't ungeocode one of your base tables. Unless you have created a backup of that table, you will no longer be able to display that table as a map or use it for geocoding.

Joining

Another way to get your data onto a map is to *join* two tables temporarily. Unlike geocoding, which permanently assigns X and Y coordinates to your data records based on geographic information, joining tables does not permanently change either table.

When you join two tables, MapInfo again searches for matches between your table and the search table. But instead of permanently assigning coordinates to your records based on this match, joining creates a temporary table which combines all the fields from your table with all the fields of the search table.

For example, you have a table of demographic information about various counties in your state. You want to attach this data to your state county map. You could geocode your county data. However, you would have to put points on the map where the data is anchored.

You want the data attached to a boundary rather than a point. You want to be able to click on the county boundary with the Info tool and see all the data associated with that boundary.

To join two tables temporarily, use the Join command under the Table menu. MapInfo allows you to join tables by matching columns or by geographically joining the two tables.

When you join two tables through column matching, you specify which columns in the two tables contain similar data. For example, you have two tables, one containing world environmental data and the other containing world population statistics. To temporarily join the two tables, you must specify what data the two tables have in common. If both tables

contained a COUNTRY column, you could join the two tables on that column. The resulting table would contain the data from both tables.

COUNTRY	VAR1
Columbia	345
Belgium	456

Table 1

COUNTRY	VAR2
Columbia	5
Belgium	9

Table 2

COUNTRY	VAR1	VAR2
Columbia	345	5
Belgium	456	9

Temporary Join table

Creating Points

The Create Points function allows you to create points for each record in your database that has X-Y or longitude/latitude coordinate information. This can be a file which you created in MapInfo or a file which you have created in some other application.

This function is used most often to create point objects for Pointfiles imported from MapInfo for DOS. Files of this type, which contain geographic coordinates, do not automatically display data objects on a map. This geographic information has to be translated into a form which can be used in a Mapper. Use the Create Points command to translate this information.

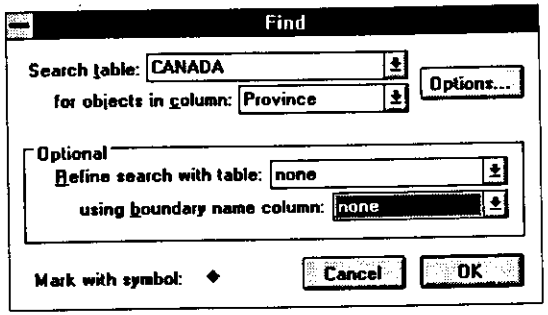
MapInfo uses the coordinate fields in your table to create point objects. Records which already have graphic objects associated with them will be skipped.

For more information on creating points, see Create Points in the MapInfo *Reference Manual*.

Locating Data on the Map

Once you have assigned X and Y coordinates to your data records, you can use Find to locate individual records or objects. When MapInfo locates an object on the map, it marks it with a symbol.

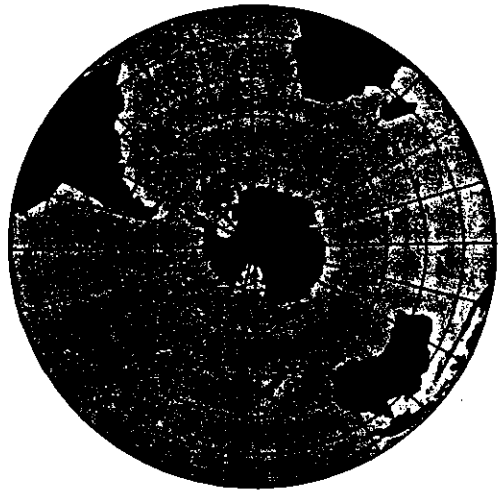
The Find dialog is very similar to the Geocode dialog. You can specify a table to search, a column to search, and an optional refining boundary column. Once you have filled in the dialog, MapInfo prompts you to enter the object's name (or geographic location). MapInfo searches the table, highlights the found record, locates the object on the map, and marks it with a symbol.



The Find Dialog

You can perform a Find command only on an indexed field in a table. For more information on indexed fields, see New and Modify Structure in the MapInfo *Reference Manual*. For more information on the Find command, see Find in the MapInfo *Reference Manual*.

Chapter 5 Making Selections



World map using a Lambert Equal Area (South Pole) projection

This chapter discusses the ins and outs of selecting records from tables. Since you will find yourself selecting records quite often, we have included the following:

- What is a Selection?
- Characteristics of Selections
- Selecting from the Screen
- Selecting Using Queries
- Unselecting Objects or Records

What is a Selection?

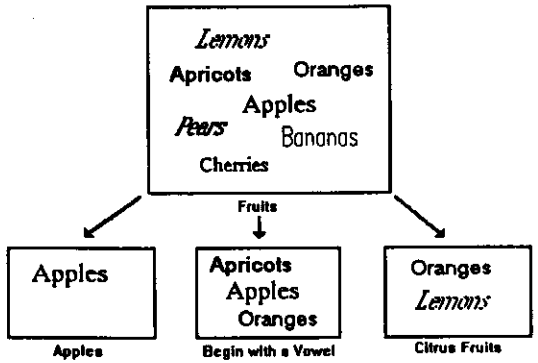
While MapInfo allows you to attach data to objects on a map, its true analytical power is its ability to group and organize data. Once your data is broken down into logical groups, you can perform analyses based on only one or more variables.

For example, you have a basket of fruit. You want to organize the fruit into different categories, based on one or more variables:

Put all the apples into one group

Put all the citrus fruit into one group (oranges, lemons, grapefruit)

Put all the fruit that begins with a vowel into one group (oranges, apples, apricots)



There are many different ways that you could group the fruit. Some fruit would fall into more than one category (oranges are citrus fruit and also begin with a vowel). You could also use more than one variable to group your fruit -- put all the citrus fruit that begins with a vowel into one group.

You could also group the fruit according to the countries which grow them -- select all fruit which is indigenous to South America. Finally, you could group the fruit randomly -- put apples and lemons in one group and cherries and oranges in a second group.

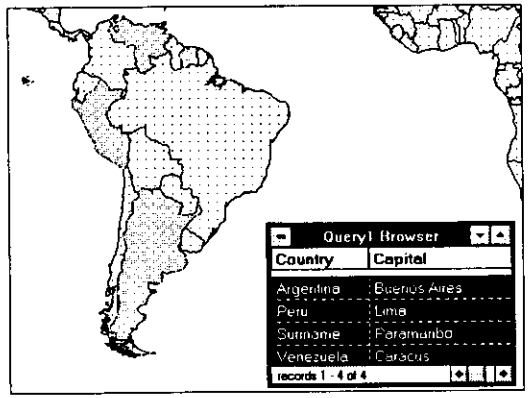
MapInfo can create similar groups with your data. MapInfo refers to these groups as *selections*. A selection is merely a subset of data that has been grouped together based on one or more variables.

For example, you have a table of customer records. You could create a subset of all customers who live within a 50 mile radius of Prague. Or, you could create a subset of all customers who purchased over $1000 of merchandise. Or, you could create a subset of all customers whose last name begins with the letter "B".

The statements above used to create these subsets are known as *queries*. A query is just another word for a question -- which of my customers spent more than $1,000? Which of my customers lives within 50 miles of Prague?

As with the fruit example, there are many different ways to group your data. Some data records will obviously fall into more than one category. You could also use more than one variable to group your data. Which of my customers lives within 50 miles of Prague and purchased over $1000 of merchandise?

Characteristics of Selections



Selection of four South American countries

Selections are temporary tables. When you make a selection, MapInfo creates this temporary table to store the records you've selected. You can perform many of the tasks with a selection table that you can perform with a permanent (base) table:

- You can view it in a Browser, a Mapper (if it has graphic objects), a Grapher or a Layout.
- You can cut and copy it into the clipboard and paste it into another table, or even into another application.
- You can use it to edit a table. If you want to edit only certain records in a table, you can get those records into a selection and then edit that selection.
- You can make a further selection from it.

To convert selections into permanent tables, use the File > Save Copy As command. Once you've saved the temporary selection table as a permanent table, you can treat the new table like any other table.

Selection tables are totally dependent on the table from which they were created. If you close a base table, all associated selection tables are deleted.

Making Selections

MapInfo gives you five commands or tools for making selections. They fall into two categories:

- Selecting from the screen: Select tool, Radius Search Select tool, Polygon Search Select tool, Select All command. To select records with the tools, click on or encircle the associated graphic objects. To select records with the Select All command, choose Select All from the Analyze menu.
- Selecting with queries: Select, SQL Select. When you select records with either of these methods, you actually create a logical expression that MapInfo uses to select the records. For example, the expression SALES > 20000 means that MapInfo will select only those records with sales higher than $20,000.

In some situations, you might want to combine selecting from the screen and querying to get the records you want. For example, you want to select all the clients who live within 20 miles of a county airport and earn under $30,000. You could first select all clients that live within the 20 mile radius using the Radius Search Select tool. You could then perform a query on the temporary table, selecting those clients who make less than $30,000 a year.

MapInfo calls the current selection Selection. Once you act on the selection (view it in a Browser or Grapher, for example), MapInfo calls it Query1, Query2, Query3, and so forth, depending on its order in the current session.

If you make a selection through Select or SQL Select you can override MapInfo's default name and give the selection a descriptive name.

Selecting from the Screen

To select objects from the screen, the layer which contains the objects must be selectable. To make a layer selectable, choose the Layer Control command from the Map menu. Bring up the Layer Settings dialog for that layer and check on the Selectable option.

When you select map objects in a selectable layer, MapInfo highlights the objects using the settings defined in the Highlight Control section of the Preferences dialog. However, when you select map objects in an editable layer, MapInfo places edit handles (little squares) around the extents of the object you selected.

If you have more than one selectable layer in a Mapper, MapInfo selects objects from the topmost selectable layer. For example, you have a selectable layer of county boundaries and a selectable layer of state boundaries. If the county boundaries are in the topmost layer in the Mapper, MapInfo selects objects from the county layer. If the state boundaries are in the topmost layer in the Mapper, MapInfo selects objects from the states layer.

Likewise, if you perform a boundary search, the boundary object that you want to search should be in the topmost layer. For example, you have a layer of ZIP Code boundaries and a layer of state boundaries. If you want to select all objects that fall within a ZIP Code boundary, the ZIP Code layer should be the topmost boundary layer. If you want to select all objects that fall within a given state, the state layer should be the topmost boundary layer.

If you want to select objects from tables other than the topmost table, hold down the Ctrl key when you are selecting an object. For example, you have a layer of states a layer of counties, and a layer of cities. All three layers are selectable. You want to select objects in the states table, but it is the bottom-most layer in the Mapper. Hold down the Ctrl key and click on the

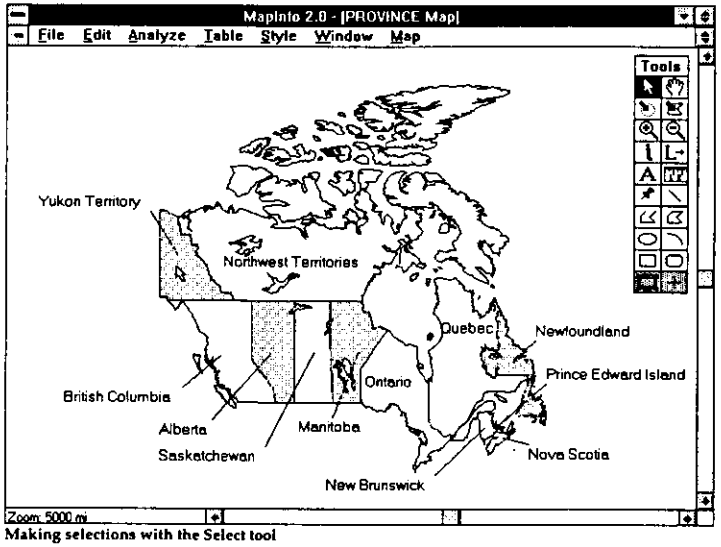
map with the Select tool. You are now in the second layer. Hold down the Ctrl key and click on the map again with the Select tool. You are now selecting objects from the third layer, the states layer.

The Select tool

Use the Select tool to select objects one at a time or to select all objects that are generally in the same area. You select an object by clicking on it.

To select multiple objects individually, click on the first object to select it. Hold down the Shift key and click on another object. MapInfo selects that object, too. If you select a second object without holding down the Shift key, MapInfo unselects the first object and selects the second object.

If you hold down the Ctrl key while using the Select tool, MapInfo selects the nearest object that is not currently selected. This is useful when trying to select an object that is obscured by another object, or one that is very close to another object. Keep in mind, however, that you can select objects from only one layer at a time.



Making selections with the Select tool

When selecting a point object, you generally want to position the Select tool in the center of the symbol. However, some symbols have a hot spot which you must hit in order to select it. For example, the hot spot on the golf flag symbol is the base of the pole.

If you want to select a group of objects, hold down the mouse button and marquee (draw a box around) a group of objects. MapInfo selects all those objects.

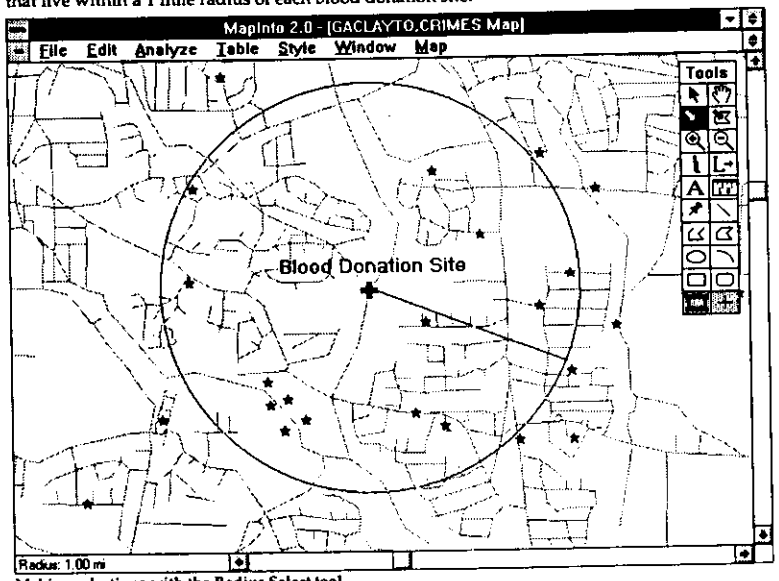
Steps for Selection

1) Make sure that the layer that you want to select objects from is Selectable.
2) Choose the Select tool from the Tool palette (Arrow icon).
3) Click on an object in the Mapper. If that object's layer is selectable, MapInfo highlights the object. If the layer is editable, MapInfo puts nodes around the extents of the object. If the layer is neither editable nor selectable, MapInfo does not allow you to select the object.
4) To see a list of the records that you have selected, choose the Browse command from the Window menu. Choose Selection from the pop-up list of tables. MapInfo creates a Browser of the new temporary table.

To select records from the Browser, simply click on each record with the Select tool.

Radius Search Select tool

The Radius Search Select tool (Circle/Arrow icon) is used to select all objects that fall within a given radius. For example, you have a table of blood donors and a table of blood donation sites. Using the Radius Search Select tool, you could create a temporary list of blood donors that live within a 1 mile radius of each blood donation site.



Making selections with the Radius Select tool

Note that the Radius Search Select tool selects all objects whose centroid falls within the circle. The object doesn't have to be completely bounded by the circle.

Steps for Selection

1) Make sure that the layer that you want to select objects from is Selectable.
2) Choose the Radius Search Select tool from the Tool palette (Circle/Arrow icon).
3) Click on a point on the map that you would like to use as the center point of your radius search. For example, if you wanted to select all the fire hydrants that fell within 2 miles of a fire station, you would click on the fire station and use that as the center point. When you click on the map, the cursor becomes a finger.
4) Hold down the mouse button and drag the mouse away from the center point. MapInfo draws a circle around the point and reports the radius of the circle in the lower left corner of the screen.
5) When you have the desired radius, release the mouse button. MapInfo highlights all map objects that fall within that circle.
6) To see a list of all the records that fall within that circle, choose the Browse command from the Window menu. Choose Selection from the pop-up list of tables.
7) MapInfo creates a Browser of the new selection table.

Polygon Search Select tool

If you want to select objects that fall within a given region or boundary, use the Polygon Search Select tool (Polygon/Arrow icon). When you use this tool, MapInfo selects all objects within any boundary on the map, such as state or county boundaries, police precincts, or sales territories.

For example, you have a layer of states and a layer of retailers. Using the Polygon Search Select tool, you could click on a state and create a temporary list of all the retailers in that state.

You can draw your own polygons and search for objects within them. For example, you have a table of city streets and a table of retail businesses. Since streets are made of lines and not boundaries, you cannot search within a city block. However, you could create boundaries by tracing the street map with the Polygon tool. You could then search within that boundary for objects.

You can also create search polygons with the Buffer command. The Buffer command is used to create boundaries around points, lines, or other boundaries. For example, you want to search for all customers who live within five miles of Interstate 90. Using the Buffer command, you could create a polygon that would encompass any area within five miles of Interstate 90.

You could even use the Buffer command to create a boundary around another boundary. For example, you want to search for all radio stations that are located within twenty miles of a given county. Using the Buffer command, you could create a polygon that would encompass any area within twenty miles of the county boundary.

To perform a polygon search, two layers must be selectable; the layer containing the objects you are selecting and the layer containing the boundary you want to use in selecting those objects.

If you hold down the Ctrl key while using the Polygon Search Select tool, MapInfo skips over the boundary in the topmost selectable layer and selects objects from the boundary in the next selectable layer.

Steps for Selection

1) Make sure that both the boundary layer and the layer that you want to select objects from are selectable.
2) Choose the Polygon Search Select tool from the Tool palette (Polygon/Arrow icon).
3) Click within a boundary object. MapInfo selects all objects that fall within that boundary.
4) To see a list of all the records that fall within that boundary, choose the Browse command from the Window menu. Choose Selection from the pop-up list of tables.
5) MapInfo creates a Browser of the new selection table.

Selecting Using Queries

A *query* is just another word for a question -- which of my customers spent more than $20,000? Which of my customers lives in Vermont? With Select you can formulate queries like:

- Show me all ZIP Code regions where the average household income is above $65,000.
- Show me all ZIP Code regions where the median age is 42.
- Show me all the ZIP Code regions where the household income is above $65,000 and the median age is 42.
- Show me records for all orders received in July or September
- Show me all cities of over 100,000 people in Texas, Hungary, and Sri Lanka.

There are two methods of selecting with queries: the Select command and the SQL command. This chapter concentrates on the Select command. For more information about using the SQL Select command, see Chapter 8.

To perform a query, you must create an expression. An expression is a logical statement that is used to ask your question. For example, you have a table of apartments for rent. If you wanted to create a temporary table of all apartments that cost less than $800 a month, you could use the expression:

RENT < 800

RENT is the column which contains the per month rent rate. The < sign indicates less than.

You can also perform mathematical operations on your data. For example, you want to create a temporary table of all apartments that have a total cost of less than $800. Total cost is equal to the sum of the rent and the monthly utilities. You could use the expression:

RENT + UTILITIES < 800

You are telling MapInfo to add the number in the RENT column and the number in the UTILITIES column and then compare that number to 800.

There are two ways of creating an expression. The first method is to type in the expression directly. When you are creating very simple expressions, this method is usually faster. The second method is to press Assist and build your expression using the pop-ups in the Expression dialog. This method is particularly useful when you are just learning how to build expressions or when you are building very complex expressions.

The Expressions dialog gives you three pop-ups which you can use to build your expression:

- Columns
- Operators
- Functions

Columns

This pop-up lists every column in the table from which you are selecting. If the table contains derived columns from previous queries, those columns will also be listed.

Operators

This pop-up contains mathematical and logical operation symbols. The operators in this pop-up include addition, subtraction, multiplication, division, greater than, less than, and equals signs. You can use these symbols to create mathematical formulas.

For example, you have a table of sales representatives. You want to select those sales representatives who, on the average, gross more than $2000 per month. Gross sales is computed by adding together sales and commission.

You have two columns in your table: TOTAL_SALES, which is total sales for the year for each representative and COMMISSION, which is total commission for the year for each representative. You could build the following expression:

(TOTAL_SALES + COMMISSION) / 12 < 2000

This expression tells MapInfo to add the number in the TOTAL_SALES column with the number in the COMMISSION column. However, this gives you gross sales for the year. We want average gross sales for the month. Therefore, we divide the sum by 12, which will give us a monthly average. We then compare that figure with 2000.

The Operators pop-up also includes logical operators conjunctions like AND, NOT, and OR.

Functions

This pop-up contains mathematical functions that take one or more parameters and returns a value. You use functions to perform basic mathematical functions on the data in that column. For example:

abs(<number>)

takes the absolute value of the numbers in the specified column.

For example, a meteorologist wants to select all days where the temperature in her city was more than 10 degrees warmer or cooler than the national average. She has a column in her table, AVG_DIFF, which contains the difference between the national average and city average. She could create the following expression:

AVG_DIFF < -10 Or AVG_DIFF > 10

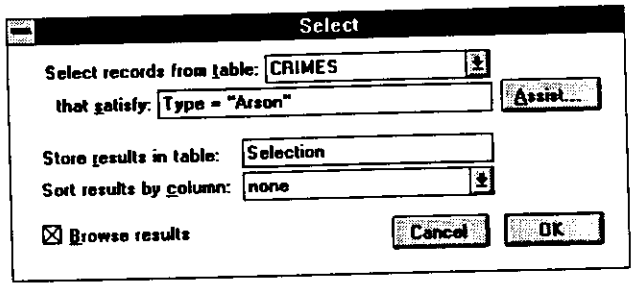
This expression tells MapInfo to select all records that have an average difference less than -10 or greater than +10. However, she could also create the following expression:

abs(AVG_DIFF) > 10

This expression tells MapInfo to select all records where the absolute value of the average difference is greater than ten.

The Functions pop-up has many other functions, including area, perimeter, sin, cos, and date-related functions. For a complete list of functions, see Expressions in the MapInfo *Reference Manual*.

Steps for Selection



Select dialog

1) Choose Select from the Analyze menu.
2) Specify the table from which you want to select records.
3) Create a logical expression that will be used to select records.
4) To see a list of the records that you have selected, choose the Browse command from the Window menu. Choose Selection from the pop-up list of tables.
5) MapInfo creates a Browser of the new selection table. MapInfo names the table Query 1. It will name the next temporary selection table Query 2. If you make a selection through Select or SQL Select you can override MapInfo's default name and give the selection a descriptive name. Type the new name into the Store Results in Table box.

Unselecting Objects or Records

You may choose to:

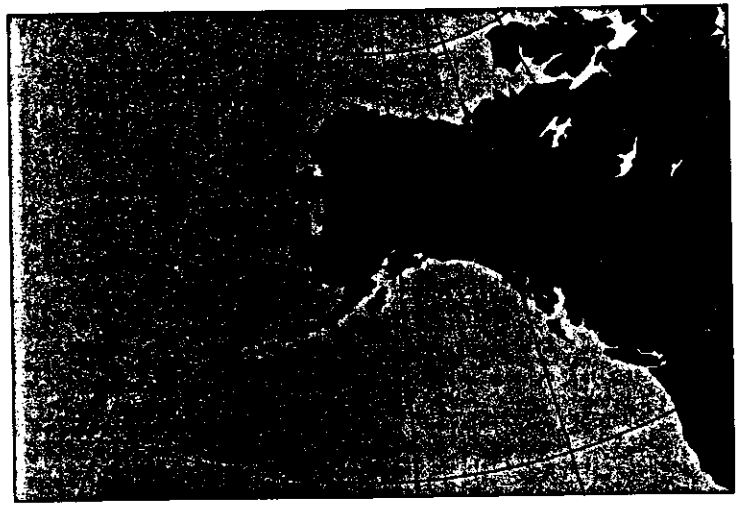
- unselect one object or record from a group of selected objects or records
- unselect a group of selected objects or records
- unselect all selected objects

To unselect one object or record from a group of selected objects or records, hold down the Shift key and click on the object or record with the Select tool. When you click on it, it becomes unselected.

To unselect a group of objects, hold down the Shift key and marquee (draw a box around) the objects with the Select tool. This will unselect all objects falling within the marquee.

To unselect all objects, you can either click on the Mapper where there are no objects or choose the Unselect All command from the Analyze menu.

Chapter 6 Using Thematic Mapping to Analyze Your Data



Alaska map using an Albers Equal-Area Conic (Alaska) projection

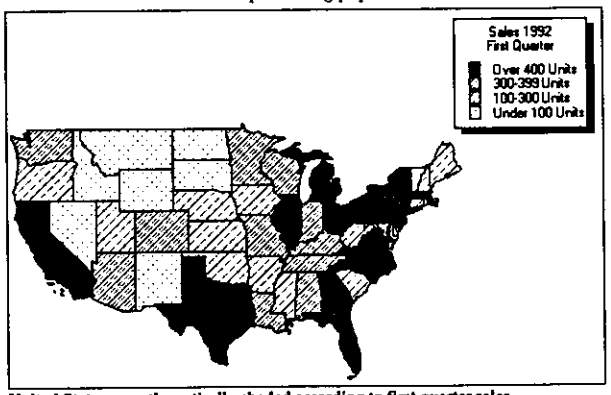
Thematic mapping is a powerful way to analyze your data. You give graphic form to your statistical data so that you can see it on a map. Patterns and trends which are almost impossible to detect in lists of data become obvious when displayed on a map.

This section includes:

- What is Thematic Mapping?
- Methods of Thematic Mapping
- Steps for Thematic Mapping
- Creating a Thematic Expression
- Customizing a Thematic Legend

What is Thematic Mapping?

Thematic mapping is the process of assigning different colors, fill patterns, line types, or symbols to map objects according to *value*. For example, you could thematically shade a map of the world according to population, with blue countries representing population over 20 million and red countries representing population under 20 million.



United States map, thematically shaded according to first quarter sales

You are not limited to representing numeric values with thematic mapping. Nominal values also may be shaded thematically. For example, you have a table of underground cables. Those cables that haven't been serviced in the past six months are labeled priority status. You can shade the cables according to their repair status.

Or you have a table of restaurants. You can thematically shade each corresponding symbol according to the type of cuisine that each restaurant serves. Red dots could represent Thai food while blue stars could represent pizza parlors.

Shading Map Layers: Data From Map Table VS. Data from Another Table

There are two ways that you can use data to create a thematic map. You can shade a layer with data from the same layer. For example, you have a table of parking meters. which includes the location of the parking meter and the last time the parking meter was emptied. You could shade the parking meter symbols according to the last time each meter was emptied. You are thematically shading a layer using data from that layer.

You can also shade a layer based on data from another table. For example, you have a table of county boundaries and a table of police stations. You could thematically shade the county boundaries according to the number of police stations in each county.

If you want to shade a layer based on data from another table, the two tables must have a common link. If you want to shade a layer of counties based on the number of police precincts per county, MapInfo must be able to determine which police precincts fall in which counties. When you shade a layer based on data from another table, MapInfo must first *join* the two tables.

There are two ways to join tables. The join can be made by matching columns in the two tables. The two tables must have a common field. For example, by matching the COUNTY column in a table of counties with the COUNTY column in a table of business data, you can shade the counties according to the business data.

The link can also be made geographically when map objects contain (or are contained in) other map objects. For example, you can shade county boundaries according to the number of points that are located within each boundary. When joining this way, the two tables do not have to have a common field. However, both tables must be mappable.

MapInfo often can make the geographic link without assistance. For example, you are shading a layer of states according to demographic data in another table. If both the states table and the demographic table have the column STATE, MapInfo can geographically link these two tables without assistance.

In some cases, MapInfo will not be able to make this link automatically. For example, you are shading a layer of states according to demographic data in another table. However, the states table has a column STATE and the demographic table has column ABBR. The ABBR column contains the same information as the STATE column (state abbreviations). MapInfo has no way of knowing that two differently named columns contain the same information. Therefore, you must tell MapInfo where to find that information.

When shading a layer according to whether map objects contain (or are contained in) other map objects, you must perform the join manually.

For more information on performing Joins, see the Join section of the MapInfo *Reference Manual*.

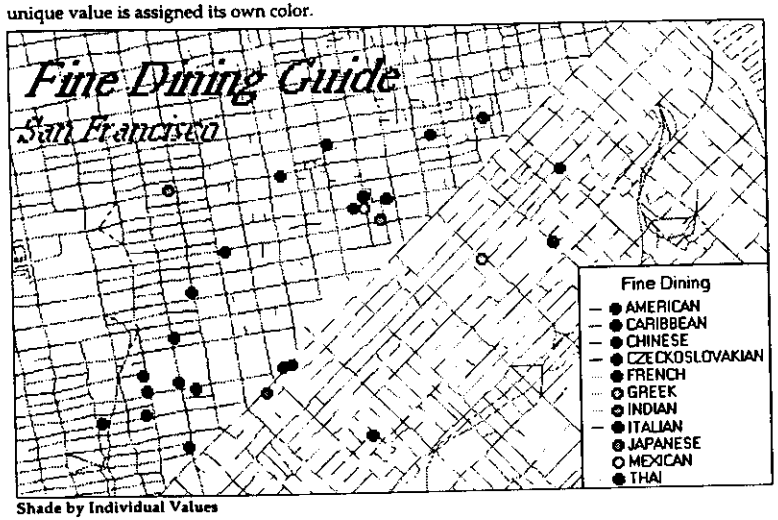
Methods of Thematic Mapping

The following sections offer general information on the methods you can choose for shading values. Each of these methods may be customized using the Customize option in the Shade By box of the dialog. For more information on these methods and options, see "Shade by Value" in the MapInfo *Reference Manual*.

Individual Values

When you shade points or boundaries by individual values, MapInfo gives each unique value its own color. You can shade either numerical or nominal values individually.

For example, a soft drink distributor has a table of supermarkets. Each supermarket sells his brand of soft drink for a different price. If he shades the supermarket points by price, using individual values, all stores that sold the soft drink for 49 cents would be shaded one color, all stores that sold the soft drink for 51 cents would be shaded another color, and so on. Each unique value is assigned its own color.



Shade by Individual Values

If you are shading your points or boundaries using nominal data, you can shade *only* by individual values. Nominal data is either non-numerical data (name, type of cuisine served, or brand of automobile sold) or numeric data where the numbers are used as names instead of values.

For example, you have the results from a consumer survey. One question on the survey reads "What is your favorite Sunday afternoon activity?" The possible responses are:

1) Sleeping
2) Watching TV
3) Taking a drive
4) Reading
5) Playing or watching sports
6) Visiting museums or art galleries
7) Going to the movies

You want to shade each consumer point with the favorite Sunday activity. The SUNDAY column of your table contains the number which corresponds to the consumer's favorite

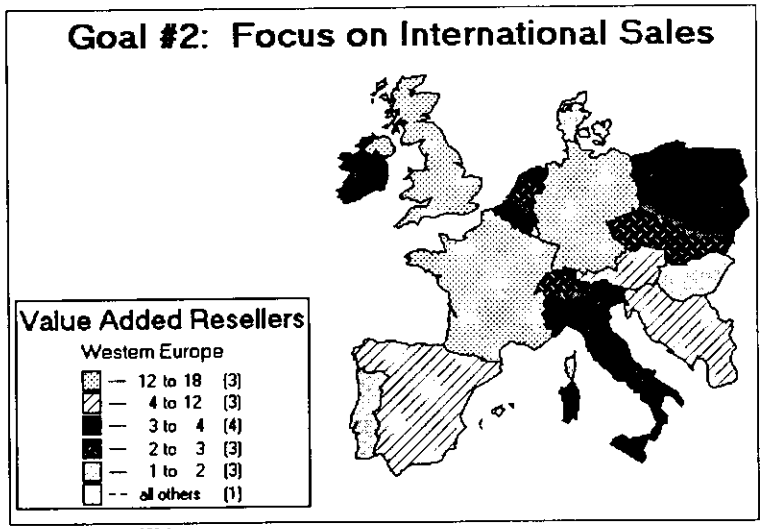
activity. However, the numbers in this column do not represent a value. "Going to the movies" is not greater than "Playing or watching sports" (even though 7 > 5). "Watching TV" plus "Reading" does not equal "Visiting museums or art galleries" (even though 2 + 4 = 6). When numbers are used as names instead of values, you must shade your objects by individual values.

Range of Values

Unlike Individual Values, which assigns a unique symbol or color to each value, Range of Values groups all records into ranges and assigns each record the color or symbol of its corresponding range. For example, you have a table of radio stations. You want to shade the station points according to their transmission range.

If you used the Individual Values shading method, MapInfo would assign a different color or symbol to each unique transmission range. Radio stations with a transmission range of 79 miles would get shaded one color and stations with a transmission range of 81 miles would get shaded a second color.

However, if you used the Range of Values option, MapInfo would group the station records into ranges. All radio stations with transmission ranges between 75 and 100 miles would be grouped into one range. Stations with a transmission range between 50 and 75 miles would be grouped into a second range. All records are assigned to a range and then assigned a color based on what range they belong to. All stations with a transmission range between 75 to 100 miles are shaded blue and all stations with a transmission range between 50 to 75 miles are shaded red.



Shade by Range of Values

MapInfo can group records into three types of ranges. Equal Number Of Records has the same number of records in each range. If you want MapInfo to group 100 records into 4 equal size ranges, MapInfo computes the ranges so that 25 records fall into each range.

When using Equal Number Of Records (or any Shade by Value method), watch out for any extreme data values that might affect your thematic map (in statistics, these values are referred to as *outliers*). For example, if you told MapInfo to shade according to Equal Number Of Records with this database:

John	5000
Wilma	6000
Miguel	4500
Linda	5000
Ben	100
Andrea	7000
Kyle	5500
Angela	7500
Elroy	6000

Ben and Miguel are grouped in the same range (since they have the two lowest values).

Equal Size divides records according to the range of the data. For example, you have a field in your table with data values ranging from 1 to 100. You want to create a thematic map with four equal size ranges. MapInfo produces ranges 1-25, 26-50, 51-75, and 76-100.

Keep in mind that MapInfo may create ranges with no data records, depending on the distribution of your data. For example, if you told MapInfo to shade the following database according to Equal Size:

John	100
Wilma	6
Miguel	4
Linda	95
Ben	10
Andrea	90
Kyle	1
Angela	92
Elroy	89

MapInfo creates four ranges (1-25, 26-50, 51-75, and 76-100). However, if you look at the data, only two of those ranges (1-25 and 76-100) contain records.

Besides Equal Number Of Records and Equal Size, you can also customize the ranges MapInfo uses for shading. For more information about customizing ranges and other Shade by Value options, see Shade by Value in the MapInfo *Reference Manual*.

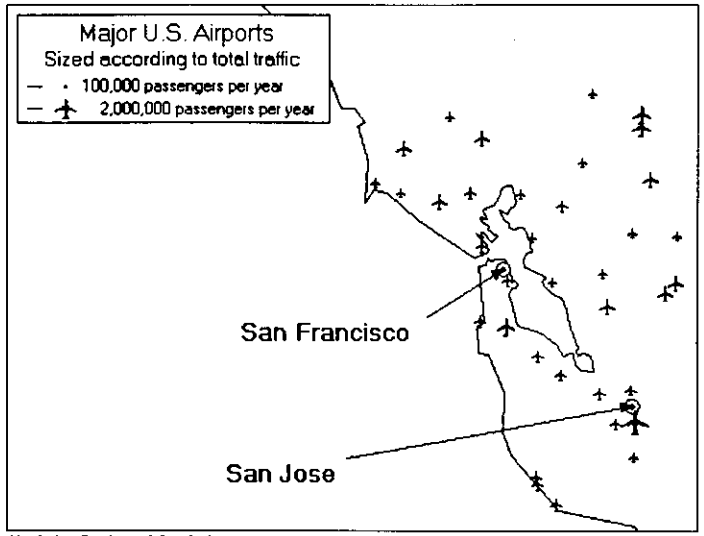
Graduated Symbols

Graduated symbols use symbols to represent different values. You should only use the graduated symbol option when you are working with a layer that contains points. You cannot use the graduated symbols option with lines or boundaries.

When you select the graduated symbols option, MapInfo varies the size of each symbol according to the value. For example, the following symbol represents a customer on your map:

If you used the graduated symbol option, you could represent how much interest each customer had expressed in a given product by assigning a symbol whose size was proportional to the customer's interest:

You should only use graduated symbols when shading points with numeric data. If you are working with a layer of restaurants, it makes no sense to create graduated symbols based on the type of cuisine each restaurant served. However, it would make sense to use graduated symbols to differentiate the number of hamburgers sold at 20 different fast food restaurants.



Shade by Graduated Symbols

There are two options you can customize on a graduated symbol map. You can change the symbol which is graduated. Click on the symbol icon to access the Symbol Picker. The default symbol is a hollow circle, such that overlapping circles will show through.

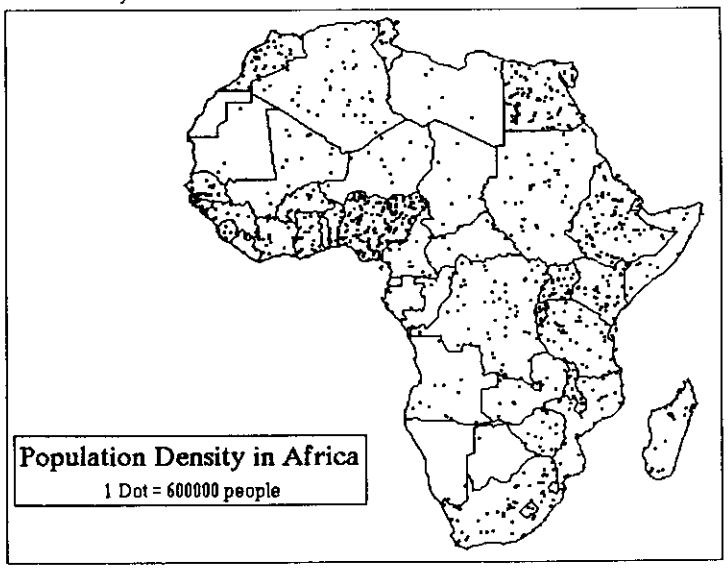
You can also customize the size of the symbols. There are text fields which show data values and their respective point size for that symbol. All values between the high and low values

have interpolated point sizes. If you want the symbols at the low end to be larger, increase the point size.

Dot Density

Dot density maps use dots to represent the data value associated with a boundary or region. Each dot represents a data value. If you had 10,000 senior citizens in a county, and each dot represented 100 senior citizens, there would be 100 dots in the county boundary. Dot density is best used for showing raw data: population, number of fast food restaurants, number of distributors who carry a brand of soda.

For example, if you have a table of age demographics broken down into ZIP Codes, you could use the dot density option to show the concentration of small children in each ZIP Code boundary.



Shade by Dot Density

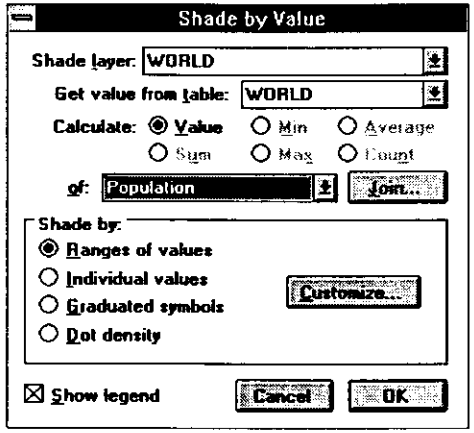
There are three options you can customize on a dot density map. You can specify the value of one dot. For example, you have a table of political population statistics, broken down by county. There are 20,000 democrats in Rensselaer County. If you wanted to thematically shade Rensselaer County according to the number of democrats using the dot density method, each dot could represent 200 democrats. In that case, there would be 100 dots in Rensselaer County.

However, you could customize your dot density map so that one dot represents 400 democrats. In that case, there would be 50 dots in Rensselaer County.

You can also customize the size of the dots and the fill pattern behind the dots.

Note: Distribution of dots is random within the region. If you shade states according to population, the dots for New York are spread out throughout the state, not concentrated in New York City.

Steps for Thematic Mapping



Shade by Value dialog

1) Choose Shade by Value from the Analyze menu
2) Select the table from which you be get the data
3) Select which layer from your Mapper you will shade
4) Choose a method of data calculation
5) Select which column contains the data to be used to generate the thematic values. You can also create a mathematical expression with multiple columns to use for thematic mapping.
6) Select a method of thematic mapping.
7) If you are shading a layer with data from another table, use the Join option to geographically link the two tables.
8) If you want to customize your thematic results, choose the Customize button.
9) Press OK.

Creating a Thematic Expression

Calculation Methods

There are six methods of calculation. Five of the methods are aggregate functions which perform mathematical calculations on your data before creating thematic ranges or values. These methods are only available when you are shading layers with numerical data from another table. The sixth method, Value, is used only when you are shading a layer with data from its own table.

Value

Value is used only when a table is shaded by values found within that table. For example, you are shading a layer of county boundaries based on the amount that each county spends on education. Your table has a column with the county education budget (ED_BUDGET). You merely want to shade the county boundaries based on the *value* of the ED_BUDGET.

However, you are not limited to taking the value of one column in your table when you use the Value option. You can create mathematical expressions using multiple columns in your table. For example, you are shading a layer of county boundaries based on education budgets. Your table may have two columns; an elementary education budget (ELEMENT_ED) and a secondary education budget (SECOND_ED). However, you want to shade each county according to the total education budget. Using the Expressions dialog (accessible through the Of pop-up menu), you can create the following expression:

ELEMENT_ED + SECOND_ED

This tells MapInfo to add the value in the ELEMENT_ED column with the value in the SECOND_ED column and use that sum to thematically shade the county boundaries. Note that you are still using the Value option. MapInfo uses this value for thematic shading.

Aggregate Functions

The other five options in the Calculate section of the Shade by Value dialog perform mathematical calculations on the data which MapInfo uses for shading. These options are only available when you are shading a layer with data from another table.

Use the Sum option to shade objects according to the sum of the data values for all matching records. For example, you are shading a layer of county boundaries according to the county education budget. You have a table of county boundaries and a table of town education budgets. To calculate the county education budget, choose the Sum option. MapInfo adds up the education budget for each town in a county and shades according to that sum.

Use the Min and Max options to shade objects according to the minimum or maximum value for all matching records. For example, you are shading a layer of county boundaries according to town education budgets. If you want to shade the counties according to the lowest amount that a town within the county spends on education, choose the Min option. If you want to shade the counties according to the highest amount that a town within the county spends on education, choose the Max option.

Use the Avg option to shade objects according to the average value for all matching records. For example, you are shading a layer of county boundaries according to town education budgets. If you want to shade the counties according to the average amount that a town within the county spends on education, choose the Avg option.

Use the Count option to shade objects according to the number of matching records. For example, you are shading a layer of county boundaries according to the number of education budgets in each county. When you choose the Count option, MapInfo merely counts the number of budgets (records) per county and shades according to that sum.

Choosing Columns

Use the Of pop-up to select which column contains the data which will be used for shading. This pop-up includes every column in the table that you specified in the Use Table pop-up. This pop-up also includes an Expression option, which allows you to build a mathematical expression which MapInfo can use to compute thematic values.

Keep in mind that the column you select affects which methods of thematic mapping and which methods of calculation are available. For example, if you select a column which contains character-based data, you can only thematically shade your map using the Individual Values option. Further, since you cannot perform mathematical computations on character-based data, you can only calculate data using the Value option.

Once you have chosen which column contains the thematic data, which method of calculation you wish to use, and which method of thematic mapping you wish to use, press OK to generate a thematic map.

If you select Shade by Value again for this Mapper, MapInfo lists your thematic expression in the Of pop-up. For example, you want to shade states boundaries according to the number of customers per state. You perform your thematic shading. When you enter the Shade by Value dialog again, the expression SumOfCustomers will be listed in the Of pop-up. If you want to run this shading again, simply choose Shade by Value and press OK. You do not have to set up the entire dialog again to perform the shading.

Customizing a Thematic Legend

When you create a thematic map, MapInfo automatically creates a legend which explains what the colors, symbols, or sizes represent. You can customize this legend using the Customize Legend command from the Analyze menu. For more information about customizing a legend, see Customizing Legend in the MapInfo *Reference Manual*.

You can add titles and subtitles to your legend using this dialog. You can also change which order the thematic values are presented in the legend. Check the Descending option if you want the highest value at the top of the legend. Check Ascending if you want the lowest value at the top of the list.

Ascending/Descending also works with alphabetical characters. For example, you shade a layer of restaurants according to cuisine. Check Ascending and the thematic values will be listed in alphabetical order (Types of Cuisine: American, Armenian, Austrian). Check Descending and the thematic values will be listed in reverse alphabetical order (Cuisine: Vietnamese, Ukranian, Thai, Spanish).

You can customize how MapInfo displays the ranges in the legend. For example, you have the following legend:

State Population

12000000 - 25054987
8000000 - 11999999
0 - 7999999

You could customize the legend so that it read:

State Population

Over 12000000
8000000 - 11999999
Under 8000000

However, it is important to note that changing ranges in the legend does not change the ranges in the map. For example, if you decide to combine the first two ranges into one range (Over 8,000,000), changing the ranges in the Customize Legend dialog will not affect the ranges on the map. To combine ranges or create different ranges, you need to rerun the Shade by Value command.

Chapter 7 Drawing and Editing a Map

World map using an Azimuthal Equidistant (North Pole) projection

This chapter describes how to draw and edit objects in a Mapper.

This section includes:

- Drawing in the Mapper
- Drawing Labels
- Editing in the Mapper
- Creating Territories by Combining Polygons
- Creating Buffers
- Editing Street Maps (StreetInfo)

Drawing in the Mapper

MapInfo has a complete set of drawing tools and editing commands. These tools allow you to draw and modify objects on your map. You can also use these tools to customize the colors, fill patterns, line types, symbols, and text on your map.

However, these tools and commands give you more than the ability to modify your map. You can draw a variety of objects which you can use to perform powerful geographic analyses. For example, you can draw circles, polygons and other bounded objects. You can then search for records within those boundaries.

There are nine drawing tools, each located in the Tool palette:

- **Line tool**: Use the Line tool to draw straight lines (streets, pipelines, cables). Borders around regions or boundaries are not lines. Therefore, if you use the Line tool to draw a square, MapInfo does not recognize the square as a region. You cannot shade its interior or perform searches within it.
- **Text tool**: Use the Text tool to draw alphanumeric text. You can customize font, point size, and rotation angle. You can also create text by using MapInfo's labeling tools and commands.
- **Symbol tool**: Use the Symbol tool to create point markers.
- **Ellipse tool**: Use the Ellipse tool to create ellipses shapes. To draw a circle, hold down the Shift key while using the Ellipse tool.
- **Rectangle tool**: Use the Rectangle tool to create rectangle shapes. To draw a square, hold down the Shift key while using the Rectangle tool.
- **Rounded Rectangle tool**: Use the Rounded Rectangle tool to create rounded rectangle shapes. To draw a rounded square, hold down the Shift key while using the Rounded Rectangle tool.
- **Polygon tool**: Unlike the Ellipse, Rectangle, and Rounded Rectangle tools (which only create shapes), the Polygon tool create *regions*. You can perform many more editing functions with regions, such as merging and reshaping. See these section for more information on regions.
- **Polyline tool**: Similar to the Polygon tool in that polylines can be reshaped and smoothed (replacing angles with curves). Neither options are available with objects drawn with the Line tool.
- **Arc tool**: Use the Arc tool to create arcs. You can change an arc's angle and starting and endpoints.

General Procedures

Before you can draw to any layer in MapInfo, you need to make that layer Editable. The drawing tools are grayed out on the Tool palette until a Mapper layer is editable. These rules hold true for both the Cosmetic Layer and any other layer. To make a layer editable, select Layer Control from the Map menu. Bring up the Layer Settings dialog for the layer that you want to draw to.

If you want to draw to the Cosmetic Layer, select the Editable option in the Cosmetic Layer dialog. If you want to draw to another layer, select the Editable option in the Layer Settings dialog. Only one layer per Mapper can be editable at one time.

Select a drawing tool from the Tool palette. Position the cursor over the map window and draw the object. Once you have drawn the object, you can move the object, delete it, copy it to the Clipboard, or paste it to another Mapper. You can set fill patterns, colors, line types symbols, and font with the commands from the Style menu.

To save changes, choose Save from the File menu. If you want to save objects drawn to the Cosmetic Layer, choose Save Cosmetic Objects from the Map menu.

Drawing Labels

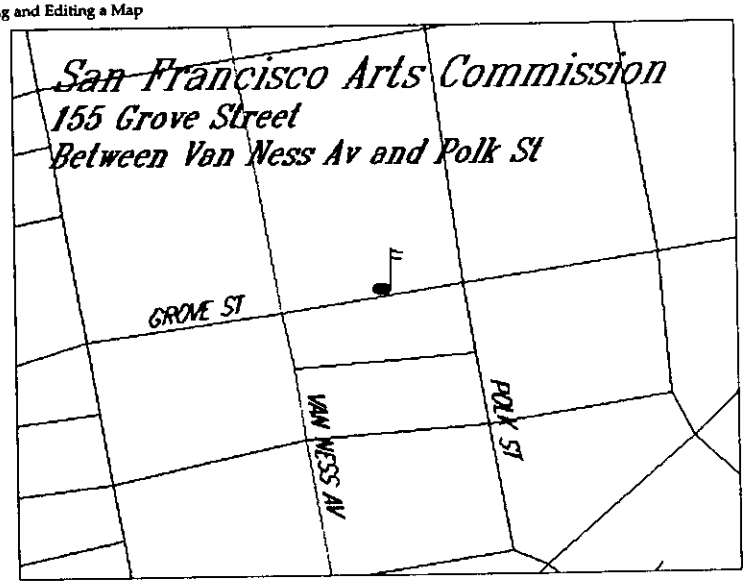
You can label maps in several ways:

- Use the Label tool with preferences set in the Labels section of the Layer Settings dialog.
- Use the Draw Autolabels command from the Map menu.
- Type your own labels with the Text tool.

General Procedures: Manual Labeling

Make sure that the layer that contains objects that you want to label is selectable. Select the Label tool (L + arrow icon) from the Tool palette. Position the cursor over the object you want to label and click on it.

MapInfo labels the object with the column that you specified for that layer in the Map > Layer Control > Settings dialog. You can also use that dialog to set font, point size, label lines and, in the case of street maps or other line objects, parallel labels.



Parallel Street Labels

Labels are always drawn to the Cosmetic Layer, regardless of whether the Cosmetic Layer, or any other layer, is editable.

Creating Callouts

Callouts are labels with lines pointing to the objects they are labeling. They are very useful when labeling many objects in a relatively small area. For example, you are labeling a map of Asia. There are many small countries that are relatively close together. If you tried to label all the countries, the labels would overlap and be difficult to read. You can create callouts by labeling all the countries and then individually dragging each label away from the country. MapInfo draws a line between the country and the label.

You can create callouts by setting the Label Lines option in the Layer Settings dialog for the layer that you want to label. Make the Cosmetic Layer editable. Label an object, click on the label and drag the label away from the object. When you release the mouse button, MapInfo draws a line from the label to the object.

Note: You must set the Label Lines option before you create the labels.

Labeling with Expressions

As mentioned earlier, you can label an object with any column from its associated table. For example, you can label the states table with the state name, abbreviation, 1990 population, or any other field in the states table. You can also label objects with an expression. Select Expression... from the pop-up list of column names. Use the Expression

dialog to create the expression. You can type in an expression directly or use the pop-ups to create an expression.

For example, you want to label states with population density. Your table contains the area of each state (TOTAL_AREA) and the population statistics (POP_1990) for that state. Select Expression... from the Column pop-up in the Labels section of the Layer Settings dialog. Using the pop-up menus, you could create the following expression:

POP_1990 / TOTAL_AREA

MapInfo uses the result of this expression to label the states.

Automatic Labeling

To have MapInfo label objects in the Mapper automatically, choose Draw Autolabels from the Map menu. Select the layer that you want to autolabel from the pop-up menu. Specify whether you want to allow overlapping labels or duplicate labels. The map layer does not have to be selectable in order to label objects with the Draw Autolabels option.

If you allow overlapping labels, MapInfo allows object labels to draw on top of one another. The Allow Duplicate Labels option is used primarily with street maps. If you check this option, MapInfo labels each street segment, as opposed to one label for the entire street.

MapInfo labels the object with the column that you specified for that layer in the Map > Layer Control > Settings dialog. You can use that dialog to set font, point size, label lines, and, in the case of street maps or other line objects, parallel labels.

Labels are always drawn to the Cosmetic Layer, regardless of whether the Cosmetic Layer, or any other layer, is editable.

Saving Labels

To save labels (and all other objects in the Cosmetic Layer), choose Save Cosmetic Objects from the Map menu. MapInfo prompts you to save the labels to an existing layer or to create a new layer to save the labels in.

Removing Labels

There are two ways to remove a label (or labels) from a Mapper. You can select the label and pick Clear from the Edit menu or press the <DELETE> key. This method allows you to eliminate only one label from the Cosmetic Layer. To use this method, the Cosmetic Layer **must** be editable.

You can also select Clear Cosmetic Layer from the Map menu. This eliminates all labels. However, this will also eliminate any other objects drawn in the Cosmetic Layer.

Four Facts You Should Know About Labeling in a Mapper

All labels are drawn to the Cosmetic Layer.

Even if the Cosmetic Layer is not editable, MapInfo still draws all labels to the Cosmetic Layer. If any other layer in the Mapper is editable, MapInfo still draws the labels to the Cosmetic Layer. You can then save them to another layer with the Save Cosmetic Objects option.

To manually label objects, the layer which contains the objects must be selectable.

However, you can automatically label objects in an unselectable layer with the Draw Autolabels option.

If you want to edit labels (move them, create callouts, change their font or point size), you must make the Cosmetic Layer editable.

Although MapInfo will draw labels to a non-editable Cosmetic Layer, you must make the Cosmetic Layer editable if you want to edit the labels.

Labels, like all other text objects, change size according to the zoom level.

For example, you label a map of the United States zoomed out to 3000 miles. If you zoom in to 1000 miles, the size of the labels changes accordingly (the labels will appear approximately three times larger).

Editing in the Mapper

Steps in Editing

Make the layer that you want to edit Editable (Map > Layer Control > Settings). To edit an object, select the object with the Select tool. If the object is a line, edit handles appear at either endpoint. If the object is a boundary or region, edit handles appear at the outer corners of the object. You can drag the object to a new position or change its line style, fill pattern, or symbol.

To delete an object, click on the object with the Select tool. Choose Clear from the Edit menu. MapInfo deletes the object. You can also delete the object by selecting it and pressing the Delete key.

Object Attributes

When you double-click on an object with the Select tool, MapInfo displays an Object Attribute dialog. This dialog gives you the size of the object, the position of the object, and other object-specific information about the object. For example, if you double-click on a region, MapInfo displays the perimeter, centroid, and area.

If the layer is selectable but not editable, you can only view these attributes. If the layer is also editable, then you can change these attributes by typing new values into the various text boxes of the dialog.

You can also bring up the Object Attribute dialog by choosing the Get Info command from the Edit menu. Select any object and choose Get Info. If the object is editable, you will be able to change its attributes. If it is not editable, you will only be able to view them.

Changing an object's size and position with the Object Attribute dialog box gives you much greater control over its exact size and position than you have through drawing it on the screen. For example, you have a list of ten radio towers and their X and Y coordinates. You could geocode these points using the Create Points command. However, you could also create ten points with the Symbol tool and then individually place them in the correct location by bringing up the point's Object Attribute dialog and typing the new corresponding X and Y coordinates.

You can also use the Text Object Attribute dialog to change the actual text. For example, you have typed the title "World Popluation" on a Mapper. You want to fix your typographical error. Bring up the Object Attribute dialog for the text object. You can correct your error in the box that displays the text.

For more information on using the Object Attribute dialog to edit your objects, see Get Info in the MapInfo *Reference Manual*.

Reshaping Objects

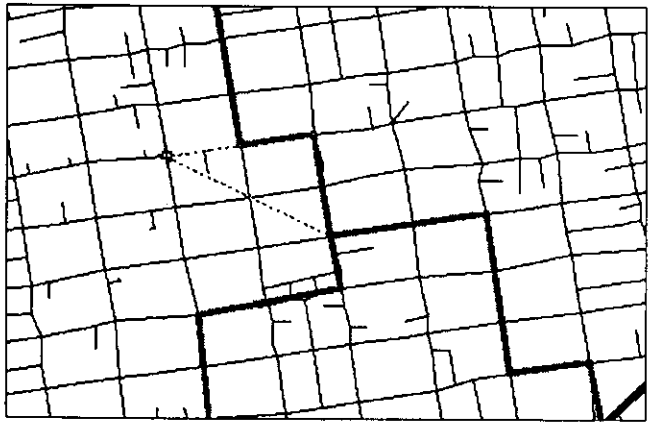
When you select an object and choose the Edit > Objects > Reshape Objects command, MapInfo draws nodes at every juncture where two polylines or polygon sides meet. You can reshape the object by moving these nodes, adding them and deleting them from the object.

You can only reshape regions, polylines, or arcs. A region is an object created with the Polygon tool. You cannot reshape objects created with the Rectangle tool, the Rounded Rectangle tool, or the Ellipse tool. If you attempt to reshape any object besides a region, polyline, or arc, MapInfo gives you a warning message.

To reshape a region or a polyline, select the object with the Select tool and choose Edit > Objects > Reshape Objects. MapInfo inserts nodes at every juncture where two polylines or polygon sides meet. The cursor becomes a small box with crosshairs.

To move a node, click on it and, while holding down the mouse button, drag the node to the desired location. To add a node, position the cursor where you want to add the node and click the mouse button. MapInfo adds a node. You can now move this node or delete it, just as you would any node. To delete a node, position the cursor over the node, click on it, and press <DELETE>.

The Reshape Objects command is very useful when you are creating sales territories or other merged boundaries. For example, you are merging ZIP Code boundaries together to create school districts. Some ZIP Code boundaries fall into more than one school district. Use the Reshape Objects command to reshape the school district to incorporate a section of a ZIP Code boundary.



Incorporating a section of a ZIP Code boundary with the Reshape command

You can also change the beginning and endpoints of an arc with the Reshape Objects command. Select the arc with the Select tool and choose Reshape Objects. Grab either end of the arc and move it to the desired location. Reshaping an arc will not change the shape of the ellipse that it is part of; merely the beginning and endpoints.

For more information on reshaping objects, see Reshape Objects in the MapInfo *Reference Manual*.

Using an Object's Nodes

Not only can nodes be used to reshape an object, they can also be used to align one object to another object. MapInfo refers to this process as snapping to a node. The Preferences command in the Edit menu allows you to set how these nodes are used. Choose Preferences from the Edit menu. Select Map Preferences from the Preferences dialog. MapInfo displays a dialog box which contains the three node options: Snap to Nodes in, Move Duplicate Nodes in, and Snap Tolerance.

Snap to Nodes

In the Mapper, regions, polylines, lines, arcs and rectangles all have nodes that can be attached (or snapped) to each other. When the Snap to Nodes option is enabled, MapInfo searches for these nodes when you are drawing, editing, or positioning objects. MapInfo automatically snaps nodes from one object to another object when they come within a certain distance of one another (giving the appearance that objects are joined). With the Snap to Nodes option, you can specify where the Mapper looks for these nodes.

Choose the None of the Layers button to disable Snap to Node. Enabling the Same Layer button snaps nodes to nearby nodes in the same editable layer. Enabling the All Selectable Layers button snaps nodes to nearby nodes in all selectable layers. This setting is useful if you are drawing an object in one layer and want to attach it to an object in another layer.

Move Duplicate Nodes

In most maps, nodes of various objects are usually connected, especially for adjoining streets and boundaries that share a common border. With this option, you can specify where the Mapper looks for connected nodes in order to move them in unison. Choose the None of the Layers button to turn the option off. Choose the Same Layer button so that connected nodes in the same layer are moved when one of them is moved.

Snap Tolerance

The Snap Tolerance field allows you to specify a tolerance within which snap operates. Suppose you set this tolerance to be 3 pixels. Whenever you move a node within 3 pixels of another node, that node will get snapped to the other.

Setting Fill Pattern, Colors, Linetype, Symbols, and Text

If you are drawing objects to a layer besides the Cosmetic Layer, MapInfo uses the settings from the Display Mode section of the Layer Settings dialog for that layer. If you have not set any preferences in this dialog, MapInfo uses the defaults color, fill pattern, line type, symbol, and text. For more information on setting the Display Mode section of the Layer Settings dialog, please see Chapter 3, Mapping in Layers.

If you are drawing objects to the Cosmetic Layer, MapInfo uses the default color, fill pattern, line type, symbol, and text type. To change these settings, select the object and use the commands in the Style menu.

Smoothing/Unsmoothing Lines

You can use the Smooth command to convert polyline angles into polyline curves. Click on a polyline with the Select tool and choose Edit > Objects > Smooth. MapInfo smooths the line so that it appears to be one continuous line with curves instead of angles. You can undo the process by choosing either the Undo Smooth command or the Objects > Unsmooth command.

Both the Smooth and Unsmooth command can be used only on polylines. A polyline is a line drawn with the Polyline tool. Smooth and Unsmooth do not work with objects drawn with the Line tool. If you attempt to smooth or unsmooth any object besides a polyline, MapInfo gives you a warning message.

Creating Territories by Combining Polygons

Creating territories is one of the most common tasks performed with MapInfo. Most people create territories by merging together two or more smaller polygons to create a larger one. Police departments merge ZIP Code boundaries to create precinct boundaries. Sales managers merge county boundaries or state boundaries to create sales territories. Political analysts merge census tract boundaries to create voting districts.

Remember, when you are merging polygons, you are also merging the data associated with the polygons. If you merge polygons without somehow aggregating the data associated with the polygons, that data will be lost. For some applications, you might not want to save your data. For example, you are merging census tract boundaries to create school districts. The census tract data is of no interest to you; you merely want the boundaries. There would be no reason to aggregate the data.

However, for most tasks, you'll want to save the data associated with the polygons. For example, you have a layer of states. You want to merge the state boundaries to create sales territories. Each state record includes a field, TOT_SALES, which contains the total sales for the previous year. You would ultimately like to sum up the TOT_SALES field for each state in a given sales territory.

MapInfo gives you two methods for merging polygons. The first method, Merge From Clipboard, is exclusively used to merge polygons without aggregating the associated data. The second method, Merge Using Column, can be used to merge polygons with or without aggregating the associated data.

Merge From Clipboard

When you merge polygons using the Clipboard, you cannot aggregate the data associated with the polygons.

Your setup of the Layer Control dialog is dependent on whether you want to copy polygons to the Clipboard (and, thus, saving the original polygons) or cut polygons to the Clipboard (and, thus, losing the original polygons).

If you want to copy the polygons, make the polygons' layer selectable and another layer (either the Cosmetic Layer or another layer) editable. Select the polygons using any selection method and copy them to the Clipboard. Unselect the states and choose Merge From Clipboard. MapInfo merges the polygons and pastes the resulting territory to the editable layer.

If you want to replace the original boundaries with the merged boundary, make the polygons' layer editable. Select the polygons using any selection method and choose Cut from the Edit menu. Choose Merge from Clipboard. MapInfo merges the polygons and pastes the resulting territory to the original layer.

Merge Using Column

If you want to aggregate the data associated with the polygons when you merge them, you must use the Merge Using Column command. Unlike Merge From Clipboard, you do not need to display the table in a Mapper in order to merge polygons. The table must only be mappable.

When you merge polygons using this command, MapInfo provides a dialog which allows you to specify which records to merge and how to aggregate the data in each column.

For example, you have a layer of states. You want to merge the state boundaries to create sales territories. The data record associated with each state looks like this:

SALES_REP	STATE	CUSTOMERS	AVG_SALES
Benita	West Virginia	1782	24231.4
Benita	Maine	121	33265.0

SALES_REP: Sales representative assigned to that state

CUSTOMERS: Number of customers per state

AVG_SALES: Average spent per customer

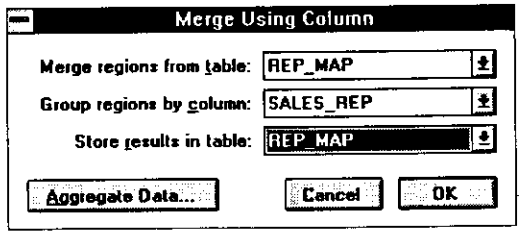
You would like to aggregate the data in the following manner:

SALES_REP: Merge all records that list Benita as the sales representative

CUSTOMERS Sum up the number of customers in the sales territory

AVG_SALES: Average the amount spent per customer in the sales territory

When performing a Merge Using Column, you must specify which column contains the grouping information. In the preceding example, the grouping information is located in the SALES_REP column. We want to merge all of Benita's individual territories into one large territory. By choosing the SALES_REP column from the Group Region By Column pop-up, MapInfo merges all records that have common data in the column. In other words, MapInfo merges all records that have the same sales representative.



The Group Regions By Column pop-up also contains the option None. Select this option if you want to merge all records in a table. This is especially useful when merging records from a selection table that have no common grouping information.

Once you have specified the table and the grouping column, you need to tell MapInfo how to merge the data. To aggregate your data, press the Aggregate button. You can aggregate each field separately, using any aggregate function for each field.

Once you have filled in both dialogs, press OK. MapInfo merges the records based on the column specified in the Group Region By Column pop-up. MapInfo also aggregates the data and merges any polygons associated with the records. For more information on aggregating data, see Merge Using Column in the MapInfo *Reference Manual*.

Creating Buffers

You would like to search for all underground cable wires that are buried within 440 yards of Interstate 90. Or you would like to contact all Democrats who live within 10 miles of the Oregon state border. You know that you can search within polygons for objects. But how do you create polygons that fit the descriptions above? You create *buffers*.

A buffer is a polygon which surrounds a line object, another polygon, symbol, or any other object in a Mapper. You can control the dimensions of the buffer polygon by setting the buffer radius. For example, you can create a buffer polygon which surrounds Interstate 90 by 440 yards on either side. You can create a buffer polygon which surrounds the state of Oregon by 10 miles on all borders. Both 440 yards and 10 miles are their respective polygons' buffer radii.

Before you can create a buffer polygon, you need to set up the Layer Control for the Mapper. Like merging polygons, you can paste the buffer polygon to any editable layer.

You can buffer multiple objects at the same time. For example, you have a layer of satellite offices. You would like to create a five mile radius buffer around every satellite office symbol. You select all office symbols (with either the Select All command or the Select tool) and choose the Buffer command. MapInfo creates five mile buffer polygons around each point. If you create multiple buffers with this method, keep in mind that MapInfo considers the resulting polygons as one polygon. If you select one buffer polygon, all buffer polygons are selected.

Once you create a buffer polygon, you can search for objects within it, just like you would any other boundary.

To create a buffer, select the object or objects on which you will base your buffer polygon. Choose Buffer from the Edit > Objects menu. To create a buffer, you must:

- Specify a buffer radius
- Set the number of segments per circle

The buffer radius determines the dimensions of the buffer polygon. For example, if you want to create a polygon that covers an area 1 mile on either side of a freeway, you would set your buffer radius to 1 mile.

The number of segments per circle determines the level of detail in the buffer polygon. The more segments per circle, the higher the level of detail. However, keep in mind that the higher level of detail, the longer it takes to create the buffer polygon. The default level is 12 segments per circle.

Once MapInfo has created the buffer polygon, it puts it in the editable layer.

Editing Street Maps (StreetInfo)

MapInfo sells street maps for every county in the United States called StreetInfo. If you have purchased any of these maps, you will need to know how to edit them. You can add and delete streets, rename streets, or edit existing streets.

We have included a StreetInfo file with your sample data. This map contains streets in San Francisco, California (sf_strts.tab).

StreetInfo files are read-only file; you can't change them. But, associated with each StreetInfo file are two files which you can change: sf_strt1.tab and sf_strt2.tab. sf_strt1 contains the graphic information about the streets and address ranges for each segment (hence, we'll call it the segments file) while sf_strt2 contains the street names (we'll call it the names file).

These two files are associated through a field called MI_refnum, which simply contains a reference number. A segment with a reference number 23 in sf_strt1 will be associated with the name in sf_strt2 which has the same reference number.

The other fields in the segments file are:

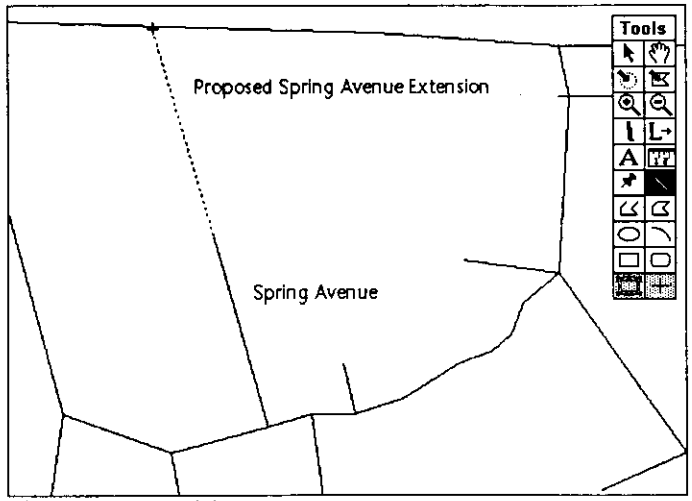
FromLeft	Starting point, address numbers, left side of the street.
ToLeft	Ending point, address numbers, left side of the street.
FromRight	Starting point, address numbers, right side of the street.
ToRight	Ending point, address numbers, right side of street.
Type	These numbers indicate the type of street, regular street, or highway.

Adding a Segment to an Existing Street

Let's assume you want to add a segment to an existing street or want to add a street for which a name already exists.

Adding a street where the name already exists isn't as odd a situation as you might imagine. This is because StreetInfo maps are county-wide. You might want to add "Poplar St" to one town. If another town already has a "Poplar St" then you don't need to add that name to the name file since it contains all the names used in the county. To find out whether or not a name already exists in the name file, use the Find command from the Analyze menu.

In either of these cases the basic idea is that you have to add a new record to the segments file and associate that record to the name file through the reference number. Assume we are working in the San Francisco files; the procedure is the same for any StreetInfo file.



Adding a segment to an existing street

1) Open sf_strts as a Mapper.
2) Open sf_strt1 using the Add to Current Mapper option in the Open File dialog.
3) Choose Layer Control from the Map menu. Make the sf_strt1 layer editable and the sf_strts layer selectable.
4) Choose Preferences from the Edit menu. Choose Map Preferences. Choose the Same Layer option under Snap to Nodes.
5) Using the Find command or the Info tool, locate the street that you want to edit. Click on the street with the Info tool. Scroll through the Info window until you locate the MI_REFNUM (MapInfo reference number) field. Make a note of that number.

6) Go to the sf_strt1 layer and draw the new segment.
7) Click on the new segment with the Info tool. Type the appropriate textual information, address ranges, street type, and MapInfo reference number.
8) Repeat the process for each additional new segment.

Adding a New Street

Now let's consider the case where you want to add a completely new street. Since the street is new, you have to make changes in both sf_strt1 and sf_strt2. The following procedure will work with any StreetInfo file.

1) Open sf_strts as a Mapper.
2) Open sf_strt1 using the Add to Current Mapper option in the Open File dialog.
3) Open sf_strt2 as a Browser. Make the sf_strt2 Browser the active window.
4) Choose New Record from the Browse menu. Scroll down to the bottom of the Browser. MapInfo appends an empty record to the Browser.
5) Type the name of the street into this empty record.
6) The new street name also needs a corresponding MI_REFNUM. The easiest way to select a mi_refnum is to keep these numbers continuous. Simply add 1 to the last MI_REFNUM listed in the Browser. Use that number as the MI_REFNUM for your new street name.
7) Choose Layer Control from the Map menu. Make the sf_strt1 layer editable and the sf_strts layer selectable.
8) Choose Preferences from the Edit menu. Choose Map Preferences. Choose the Same Layer option under Snap to Nodes.
9) Go the sf_strt1 layer and draw the new segment.
10) Click on the new segment with the Info tool. Type the appropriate textual information, address ranges, street type, and the new MapInfo reference number.
11) Repeat the process for each additional new segment.

Renaming a Street

If you want to rename a street, simply change its name in the name file (sf_strt2). If you want to rename only a part of the street, you have to add a new record to the names file, give that record a new reference number, and then assign that new reference number to the appropriate segments in the segments file.

Note that changing a name in the name file affects all segments that reference it. If you want to change the name of Broadway in one town, you have to make sure there aren't other towns in the county which also have a Broadway. If there are other towns using that street name, then you have to add the new street name to the names file and give it a reference number. You would then go into the segments file and give the new reference number to those segments you want to change.

How do you find those segments? One way would be to call up a Mapper of the town and select the segments using the Select tool. Those segment records will then be highlighted in the Browser, where you can change their reference number.

Editing Street Colors

You can change the street colors and line types in StreetInfo maps. You might want to do this to indicate streets under repair or all streets that make up a sanitation pickup route, for example.

1) Open sf_strt1 as a Mapper.
2) Choose Layer Control from the Map menu. Make the sf_strt1 layer editable.
3) Select all the streets you want to change.
4) Choose Pick Line from the Style menu.
5) Select a line width, line style, and color.
6) To save your changes, choose the Save Copy As command from the File menu.

You can use any method to select the streets, depending on the nature of the problem. You can use the Select tool to marquee an area or click on the segments, one-by-one. You could also use the Radius Search or Polygon Search selectors, or the SQL Select or Select commands.

Chapter 8 SQL Select

Australia map with Equidistant Conic for Australia projection

MapInfo has two commands for selecting objects through querying: *Select* and *SQL Select*. *Select* is simpler; *SQL Select* is more powerful. This chapter discusses SQL Select:

- Example: Computing Population Density
- Deriving Columns
- Creating Column Aliases
- Aggregating Data
- Joining Tables

What is SQL Select?

As discussed in Chapter 5, a *selection* is a subset of data that has been grouped together based on one or more variables. You create selections by formulating questions, or queries, about your data. How many customers live in the state of Idaho? Which police precinct has the highest rate of violent crime? MapInfo stores the results of these questions in temporary tables called *query tables*.

While MapInfo's Select command lets you formulate sophisticated queries, SQL Select is even more powerful. The records in the query table generated by the Select command don't have any information in them that isn't contained in the records of the base table. They are, in fact, the same records. They have been arranged so that they can be viewed together.

With SQL Select you can create query tables containing information which was only implicit in the base table(s).

The SQL Select dialog is one of the most elaborate ones in MapInfo. Don't be intimidated. Once you learn what each box is used for, it is fairly simple to create powerful selection statements. You can type directly into the boxes or you can use the pop-up menus on the right to enter items into the boxes.

The easiest way to describe the dialog is to walk you through an example, step-by-step. This example uses data from the WORLD table, so you can perform this SQL Select yourself. We have included a brief description with each step. A complete description of each box is given after the example.

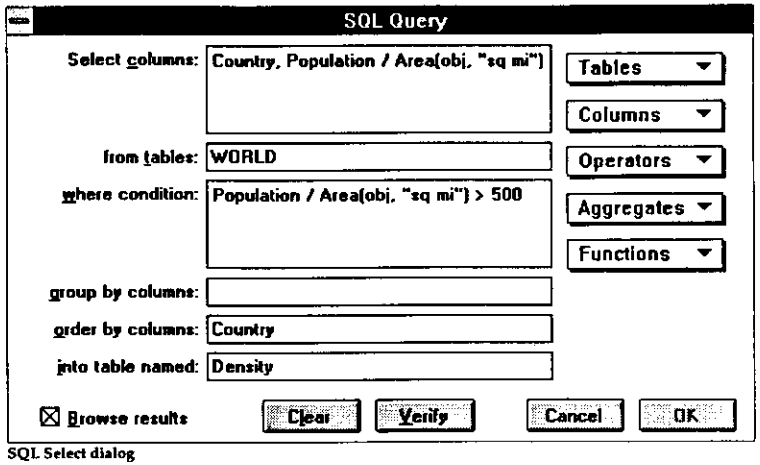
Example: Computing Population Density with SQL

You have a table of world population statistics (WORLD). You would like to create a table of all the countries that have a population density of over 500 people per square mile. The formula for computing population density is:

POPULATION / AREA

While the WORLD table has a Population column, it does not include a column for country area. However, since the WORLD table has graphic objects associated with the records, MapInfo can compute the total area for each country.

Open the WORLD table and choose SQL Select from the Analyze menu. Fill in the dialog as follows:



SQL Select dialog

First, we need to specify which tables we are going to use in the SQL Select statement. This example only uses one table, WORLD. Other SQL Select statements may involve two, three, or more tables.

In the From Tables box, choose WORLD from the Tables pop-up.

You must fill in the From Tables box before you fill in the Select Columns box. MapInfo uses the tables in the From Tables box to generate the list of columns which is used to fill in the Select Columns box.

Next, we need to specify which columns to include in the resulting query table. Remember, the query table is the temporary table which MapInfo creates to store the results of the query.

Select Columns is very similar to the Pick Fields command in the Browse menu. However, unlike the Pick Fields command (which restricts you to displaying columns that are actually in the table), the Select Columns box allows you to take columns from multiple tables or create new columns based on mathematical functions.

Tab to the Select Columns box and delete the asterisk (*).

The asterisk can be used to select all columns from all tables for your resulting query table. If you enter an asterisk in the Select Columns box, the resulting query table will include all fields listed in the Columns pop-up.

Select Country from the Columns pop-up.

Select Population from the Columns pop-up.

We have selected the Population column. Now we need to compute population density. Remember, population density is computed by dividing population by area. There is no area column in the table. However, there is a function, Area, which will compute the area of any mappable object associated with the data records.

Since the WORLD table is mappable, MapInfo can compute the area of each country and, therefore, the population density of each country.

Select the division sign (/) from the Operators pop-up.

Select Area from the Functions pop-up.

We have now created a derived column. A derived column is a column that contains the results of calculations performed on another column or columns. When MapInfo creates the query table, it will include two columns: The Country column and the Population/Area(obj, "sq mi") column, or the population density column. MapInfo includes a units statement with all geographic functions. If you wanted MapInfo to return the area in square kilometers, you would change "sq mi" to "sq ki".

Now we need to build an expression which will select only those countries whose population density is over 500 people per square mile. The Where Condition box is identical in function to the Expression dialog that is used in the Select command and other commands throughout MapInfo.

Tab to the Where Condition box.

Select Population from the Columns pop-up.

Select the division sign (/) from the Operators pop-up.

Select Area from the Functions pop-up.

Select the greater than sign (>) from the Operators pop-up.

Type in the number 500.

We have now built the expression "Select all countries whose population density (Population/Area(obj, "sq mi")) is more than (>) 500 people per square mile.

Leave the Group by Columns box blank.

See section "Grouping Records" for more information.

Tab to the Order by Columns box.

Select Country from the Columns pop-up.

The Order by Columns box allows you to specify in which order the records in the query table will be displayed. By selecting Country, MapInfo will list the records in alphabetical order, according to country name.

Tab to the Into Table Named box.

Type in DENSITY

By default, MapInfo names the query table Query1. Subsequent query tables will be named Query2, Query3, and so on. You can change the name of the query table by typing in a new table name in the Into Table Named box. MapInfo will name the query table DENSITY.

Press Verify

Once you have finished filling in the boxes, press Verify. MapInfo checks the syntax of your SQL statement. If there are any errors in your statement, MapInfo gives you an error message telling you what the error is and which box contains the error.

Make sure that the Browse Results option is checked.

When the Browse Results option is checked, MapInfo creates a Browser of the query table. If you do not check this option, MapInfo still creates the temporary query table but doesn't display it. To display the table, you would have to choose the Browse option in the Window menu and select DENSITY from the pop-up.

Press OK

MapInfo creates the following table:

DENSITY Browser

Country	Population/Area(Object)
Bangladesh	2022.56
Belgium	836.149
El Salvador	818.794
Germany	568.195
Haiti	628.961
India	640.265
Italy	530.624
Jamaica	626.538
Japan	1186.97
Lebanon	837.041
Liechtenstein	591.356
Netherlands	1043.17
Philippines	1089.5
Rwanda	758.897
South Korea	1118.08
Sri Lanka	675.873
Taiwan	1486.11
Trinidad and Tobago	696.253
United Kingdom	691.084
Vietnam	519.141

records 1 - 20 of 20

The first column contains the country name. The second column contains the population density. Note that the countries are listed in alphabetical order (Order By: Country) and the population density for each country listed is over 500 people per square mile (Population / Area(obj, "sq mi") > 500).

Deriving Columns

A derived column is a column in a query table whose contents are created by applying an expression to the values of columns already existing in some base table.

By default, the Select Columns box contains an asterisk (*), indicating that all of the columns in the base table are to be included in the query table. If you don't want all of those columns, you should delete the asterisk and list only those columns which you want to use.

You aren't limited to creating one derived column. You can create as many derived columns as you want. Note that the more derived columns you create, the longer it will take MapInfo to execute the query.

You can also created derived columns based on the aggregate functions *count*, *sum*, *avg*, *max*, and *min*. For example:

sum(Population) / sum(Area(obj, "sq mi"))

would give you the population density for the entire world. Derived columns can also have expressions as arguments: sum(POP_1990/TOTAL_AREA), max(POP_1990/POP_1980).

Creating Column Aliases

When MapInfo creates a derived column, it uses the expression itself as the name for that derived column. That can be awkward. You can, however, specify an *alias* for the column.

For example, the population density column in our DENSITY Browser was titled:

Population / Area(obj, "sq mi")

We can rename that column so that it is more descriptive. To rename the column, add the new name to the Select Columns box when you are listing the columns. The alias must follow the expression. It must also be separated from the expression by a blank space and enclosed in quotes. For example:

Country, Population / Area(obj, "sq mi") "POP_DENSITY"

When MapInfo creates the temporary query table, the population density column will now be named POP_DENSITY.

You can use aliases to rename any column in a table, not just derived columns. For example, if each country in your table is a separate sales territory for your corporation, you might want to rename the Country column "TERRITORY". The procedure is identical:

Country "TERRITORY", Population / Area(obj, "sq mi") "POP_DENSITY"

Aggregating Data

When you aggregate data, you perform a mathematical operation on all of a column's values in all of the records in your table. Unlike the Select command, which only allows you to perform mathematical functions on individual records, SQL allows you to aggregate (or summarize) data across records.

MapInfo looks for each *unique* set of data values in the specified column or columns and creates one row for each such unique set. When you perform a Group by Column, you need to specify:

1) How the records will be grouped
2) How the data will be aggregated (summarized)

For example, you have a table of sales representatives and their sales figures for the past three months:

SALES_REP	MONTH	SALES
John	May	1200
Cathy	May	900
Julie	May	1100
John	June	900
Cathy	June	1400
Julie	June	600
John	July	1200
Cathy	July	700
Julie	July	1000

Therefore, MapInfo could compute the total sales for each representative:

SALES_REP	sum(SALES)
John	3300
Cathy	3000
Julie	2700

Select Columns: SALES_REP, sum(SALES)
Group by Columns: SALES_REP

or MapInfo could compute the average sales for each representative:

SALES_REP	avg(SALES)
John	1100
Cathy	1000
Julie	900

Select Columns: SALES_REP, avg(SALES)
Group by Columns: SALES_REP

or MapInfo could compute the total sales for each month:

MONTH	sum(SALES)
May	3200
June	2900
July	2900

Select Columns: MONTH, sum(SALES)
Group by Columns: MONTH

MapInfo has five aggregate functions:

Count(*): counts the number of records in a group. It takes * as its argument because it applies to the record as a whole, and not to any particular field in the record.

Sum (*expression*): calculates the sum of the values in <expression> for all the records in a group.

Average (*expression*): calculates the average of the values in <expression> for all the records in a group.

Max (*expression*): finds the highest value in <expression> for all records in a group.

Min (*expression*): finds the lowest value in <expression> for all records in a group.

The Population Density Example Continued

Given that MapInfo can aggregate data, we could compute population density for every continent in the world. We want to create a table with the following information:

- number of countries per continent
- total population per continent
- total area of each continent
- population density of each continent

We also want the continents to be listed in alphabetical order.

Fill in the dialog as follows:

Select Columns: Continent, Count(*) "COUNTRIES", Sum(Population) "TOTAL_POP", Sum(Area(obj, "sq mi")) "TOTAL_AREA", Sum(Population) / Sum(Area(obj, "sq mi")) "POP_DENS"

From Tables: World

Group by Columns: Continent

Order by Columns: Continent

Into Table Named: DENSITY

The Count(*) merely counts all the records in the table. However, since we are grouping the countries according to Continent, MapInfo reports the number of countries in each continent and put in a column called COUNTRIES (the alias).

The resulting query table would look like this:

Continent	COUNTRIES	TOTAL_POP	TOTAL_AREA	DENSITY
Africa	...	...	...	...
Antarctica	...	...	...	...
Australia	...	...	...	...
Asia	...	...	...	...
Europe	...	...	...	...
North America				
Pacific (Islands)	...	...	...	...
South America	...	...	...	...

Joining Tables Using SQL Select

When performing an SQL Select operation with multiple tables, MapInfo needs to join information from the records in the various tables. You may have a map table containing only graphic objects and their names and a table of statistical data for some geographic region. You want to display the statistical data on the map table. You could use SQL Select to create a query table in which your statistical data and map data are joined in one table.

Whenever you are working with multiple tables, you must put a statement in Where Condition telling MapInfo how to match up the rows in the different tables.

For example, you have the World table and a table of economic statistics (Eco_Stats), broken down by country. You want to create a temporary query table which contains both sets of data:

Select Columns: * (remember, an asterisk means include all columns in the query table)

From Tables: World, Eco_Stats

Where Condition: World.Country = Eco_Stats.Country

The two columns that you want to match do not have to have the same name. For example, you have a table of international customers (Int_Cust) which contains a sales territory column (TERRITORY). This column contains continent names, since your company breaks up its sales territories according to continent. If you wanted to temporarily join the two tables:

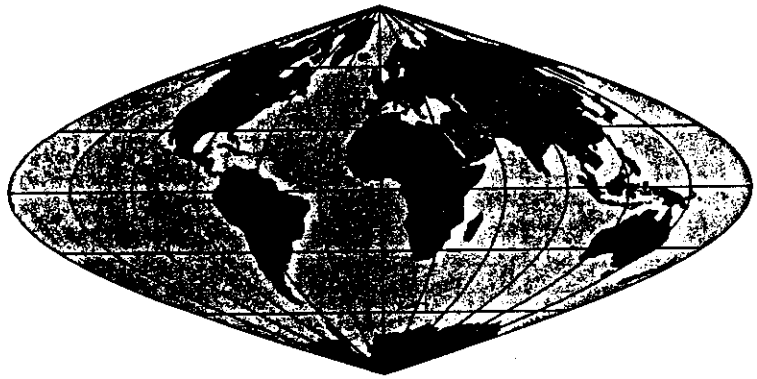
Select Columns: *

From Tables: World, Int_Cust

Where Condition: World.Continent = Int_Cust.TERRITORY

For more information about SQL, see SQL Select in the MapInfo *Reference Manual*. For more information on joining table, see Join and Join Tables in the MapInfo *Reference Manual*.

Chapter 9 Working with Projections



World map using a Sinusoidal (Equal Area) projection

How do you flatten the curved surface of the earth so that you can draw maps on flat pieces of paper and (nearly) flat computer screens? You create a *projection*. A projection is a system which defines how to flatten objects. MapInfo allows you to display your maps in different projections.

This section contains the following:

- What is a Projection?
- Earth and Non-Earth Maps
- Choosing Projections for Display
- Displaying a Map in a Different Projection
- Saving a Map to a Different Projection
- Using the Ocean and Grid Tables
- Choosing a Projection for Digitizing

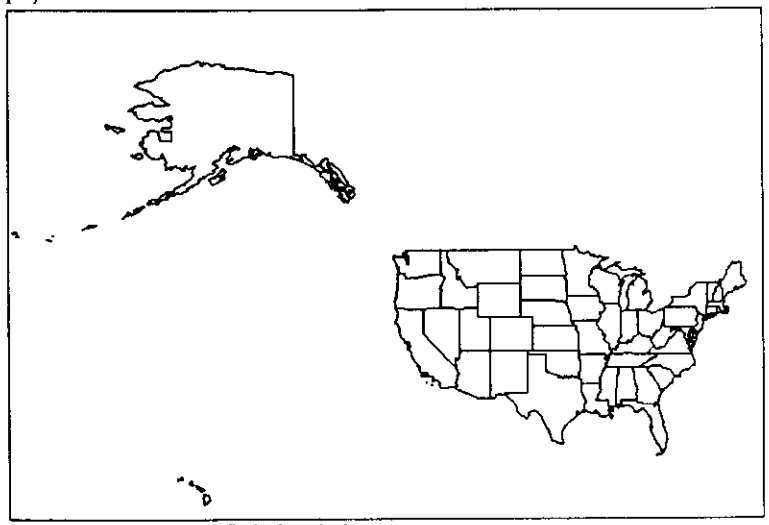
What is a Projection?

When you transfer objects from the spherical world to the relatively flat computer screen, there is bound to be some distortion.

Think about it in terms of an orange. If you write the phrase "MapInfo: Changing the Way the World Looks at Information" on an orange with a felt-tipped marker, the words look relatively normal. However, if you peel the orange and flatten it out, the words are barely legible. When words or objects drawn on a round surface (orange) are transferred to a flat surface (flattened orange) some distortion must occur.

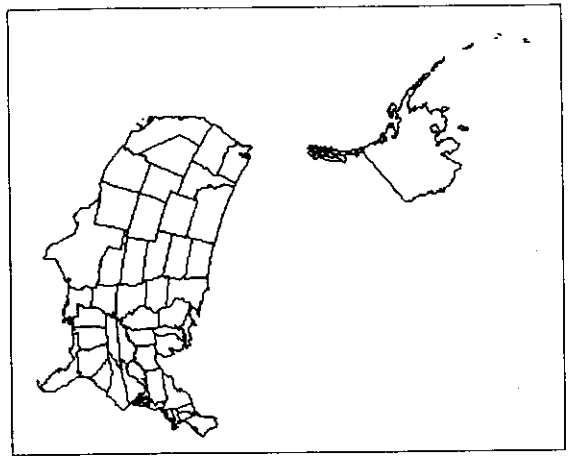
A projection is a method of reducing the distortion that occurs when objects from a spherical surface are displayed on a flat surface. There are many different types of projections, each designed to reduce the amount of distortion for a given area.

For example, this is a map of the United States, displayed using a Longitude/Latitude projection:



United States using Longitude/Latitude projection

This is also a map of the United States, displayed using a Azimuthal Equidistant (North Pole) projection:



United States map using Azimuth Equidistant (North Pole) Projection

Notice the difference between the two maps. While the first one flattens Alaska, the second shows Alaska's true size. The relative distance among the continental US, Alaska, and Hawaii is very different between the two pictures. Also, the border between the continental US and Canada is much more representative of a curved surface in the second projection.

Projections are most often used for:

- Digitizing a map which has an explicit projection system.
- Importing a DXF file which has an explicit projection system.
- Running a GIS application which requires the geographic precision of a given projection.
- Cosmetically altering your map for output.

Projections are not used for:

- Non-earth maps, whose coordinates do not have any reference to locations on earth.
- County street maps or other maps zoomed in closer than 100 miles. When you zoom in closer than 100 miles, new projections have very little effect on the overall display of your map.

This chapter concentrates on the simpler tasks you can perform with projections; adding ocean and grid layers, changing a map's projection, and saving a map with a new projection.

Earth and Non-Earth Maps

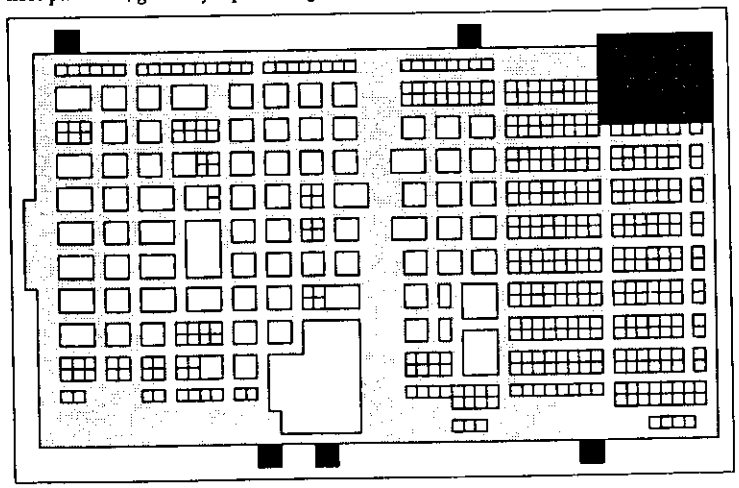
Earth maps and non-earth maps generally require different treatment. This section on projections applies only to earth maps.

An **earth map** contains objects that have a particular location on the earth's surface. All maps that MapInfo sells are earth maps. Coordinates typically represent object location in longitude and latitude although other coordinate systems (using various projections) may be used instead.

Use earth maps:

- if you want to overlay your map onto any maps that MapInfo supplies
- if you ever want to use or change projections
- if you want to specify objects on the map in terms of longitude and latitude

A **non-earth map** contains objects that have no specific location on the earth's surface. Floor plans are typical non-earth maps. Even though the floor plan describes a building that may be located somewhere on the earth, the coordinates of objects in the floor plan are generally not referenced to positions on the earth. Rather, the object's coordinates are referenced to the floor plan itself, generally representing distance from the lower left corner of the floor plan.

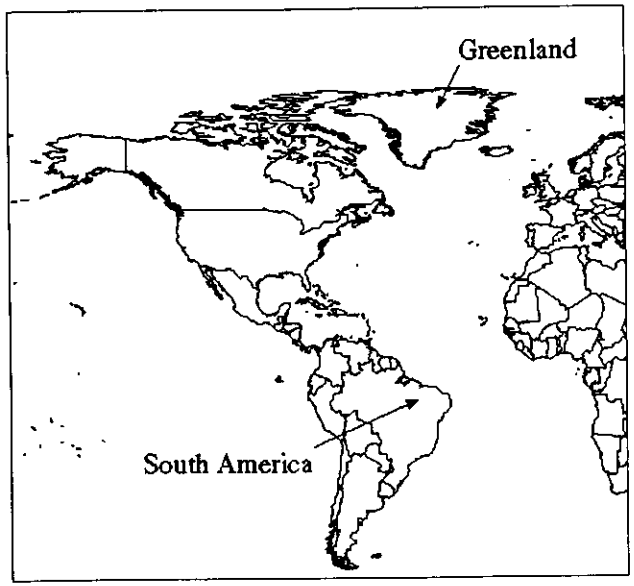


Convention floor plan, an example of a Non Earth map

Choosing Projections for Display

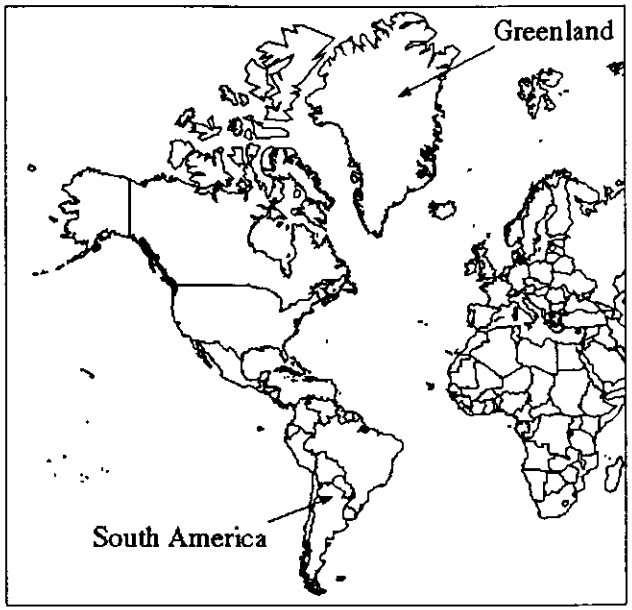
As mentioned earlier, all projections create some sort of distortion. For example, some projections distort the relative area of regions. Two regions that have the same area on the earth will appear to have different areas of the map. Other projections, such as "equal area" projections, show regions with the correct area relationships (two regions that have the same area on the earth will have the same area on the map. However, equal area projections distort the shapes of regions, usually by flattening map objects near the North and South Poles.

"Conformal" projections (such as Mercator and Lambert Conformal Conic) show the shapes of small features accurately, but distort the shapes and areas of large regions. For example, on the earth, the area of Greenland is approximately 1/8 the area of South America.



Greenland and South America, Longitude/Latitude "projection"

However, on a Mercator map, Greenland and South America appear to have the same area. While detailed areas of Greenland's coastline are displayed with the correct shape, Greenland's shape, as a whole, is distorted out of proportion.



Greenland and South America, Mercator projection

If you are not familiar with the different projections (or you are changing projections for strictly cosmetic purposes), choosing the optimal projection for display may involve some trial and error. You cannot destroy or damage your data by displaying maps in different projections. Technically, you can apply any projection to any earth map. However, we offer these general guidelines:

- If you are performing a Shade by Value on regions (countries), an equal-area projection is recommended, especially if you are mapping the entire world.
- Use the "Projections of the World" for maps of the entire world. They are generally unsuitable for mapping smaller areas.
- Use the "State Plane Coordinate Systems" for maps of the respective states. You should not use them for mapping different states or other countries.

Five Rules for Displaying and Saving Maps with Different Projections

When you display a table in a different projection, new values are calculated to display each object in that map. These values are only used to display the table in the current Mapper; the values in the table itself are not affected.

For example, assume you are viewing the States table and want to display it in the Mercator projection. You use the Choose Projection option on the Map menu to choose the Mercator projection. MapInfo redraws the Mapper using the new projection. If you open another Mapper of the States table, it will open in its native projection.

After you choose a projection for a Mapper, any layer added to that Mapper will be displayed with that projection.

If you select Map > Choose Projection, MapInfo will apply the new projection to all layers in the Mapper. If you add an additional layer to the Mapper, MapInfo will apply the new projection to that layer.

When you display a map table in a projection other than its native projection, it takes more time to draw the map. That is because the projection is being done on the fly and a lot of calculation is being done. New coordinate values are being calculated for each object in the map.

If you save a map layer with a new projection, do not delete the old map.

You can convert a map from its native projection to some other projection, but you can't always convert it back accurately.

Computing projections on the fly can take up to ten times longer to display your map. Therefore, if you plan on using a desired projection often, you should save a copy of the map with the new projection.

If your computer has a math coprocessor, it takes about twice as much time to make an on the fly projection as it takes to project a map in its native format. Without a math coprocessor it takes about ten times as much time to do an on the fly projection.

Do not edit maps while you are changing projections on the fly.

When a map is being projected on the fly, editing that map can have unpredictable results. Furthermore, MapInfo has to redraw, and therefore re-project, the map after each edit. This is very time consuming. For these reasons, we don't recommend editing such maps. You should make your edits before you project the map or save the map in the desired projection before editing.

Displaying a Map with a Different Projection

To display maps with new projections, select Choose Projection from the Map menu. Choose the desired projection from the dialog. MapInfo converts all layers in that Mapper to the new projection. When you set a projection for a Mapper, all future layers added to that Mapper will display with the new projection.

If you are going to be working with any but the simplest maps, you should wait until you're ready to print your Mapper (or Layout) before displaying a new projection. Otherwise, you may spend an inordinate amount of time waiting for MapInfo to redraw the window each time you make a change, such as editing a layer, applying thematic shading to a layer, changing your map view, or resizing the window.

Saving a Map with a Different Projection

If you want to do extensive work with a table, but want to work with it using some projection other than its native one, you can use Save Copy As to create a new table having a different native projection.

Open the table and choose Save Copy As on the File menu. Choose the desired table from the pop-up and press OK. MapInfo displays the Save Copy As dialog. Click on Projection. Choose the desired projection and press OK. MapInfo returns to the Save Copy As dialog. Click on Save.

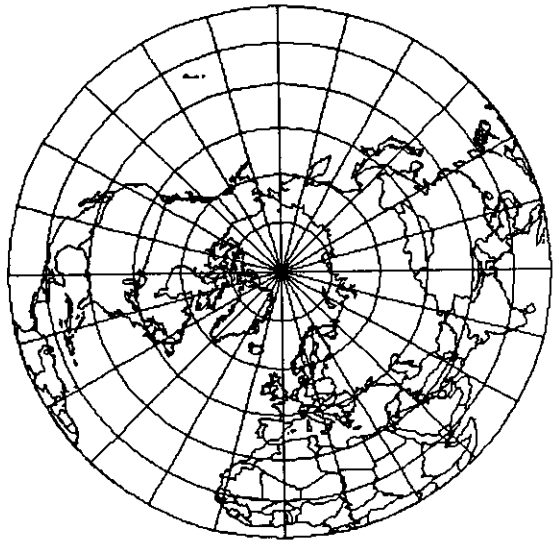
MapInfo creates a new table containing the same geographic objects. However, the coordinates have been converted to display the objects in the new format. The new projection is now the native projection for the new table. When you display the table in a Mapper, it will display rapidly with this new projection.

Whenever you save a map to another projection you should preserve the original map. Don't erase the original in order to save disk space. The process of projecting a map is often not completely reversible. **You can convert a map from its native projection to some other projection, but you can't always convert it back accurately.** If you convert a map back to the projection you started from, some coordinate points may be missing (especially near the poles).

Using the Ocean and Grid Tables

MapInfo supplies five tables which you may want to use in conjunction with projections.

You can use the Ocean table as a background layer when using world projections. You can use the four grid tables (grid5, grid10, grid 15, and grid30) to put a coordinate grid on your map (this grid is often called the graticule). The number in the table's name specifies the grid spacing, 5 degrees, 10 degrees, and so forth.



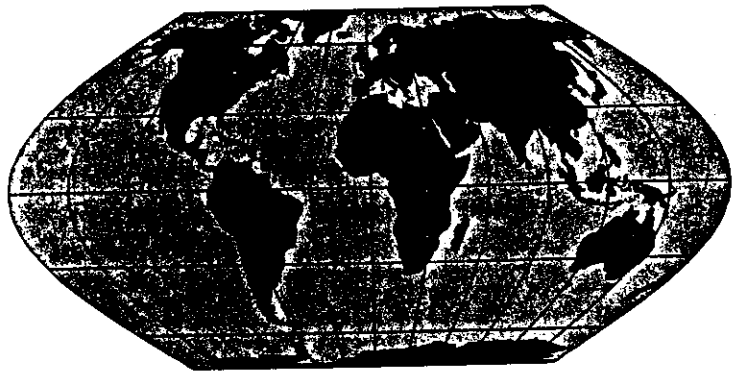
World Map using Lambert Azimuthal Equal-Area (North Pole) and 15 degree grid

Choosing a Projection for Digitizing or Importing

When digitizing a projected map, use the Projection button in Digitizer Setup to specify the projection of your paper map. Once you have finished digitizing a map, you can save the table to any other projection by using Save Copy As. For more information on digitizing, see Digitizer Setup in the MapInfo *Reference Manual*.

When importing a MIF file, the CoordSys line of the file specifies the projection of the map. If there is no CoordSys line in your MIF file, the map has a longitude/latitude "projection". When importing a DXF file, MapInfo lets you specify the projection by presenting a series of dialogs. For more information on importing files, see Import in the MapInfo *Reference Manual*.

Chapter 10 Using the Layout Window



World map using an Eckert VI (Equal Area) projection

Use a Layout window to arrange the contents of windows—Mappers, Graphers, and Browsers—for preparing final output. Once you've arranged your Layout, you can print it with a single Print command. This section tells you how to use the options on the Layout menu and various tools to create your layouts.

This section includes:

- Working in the Layout Window
- Creating a new Layout
- Customizing a Layout
- Creating and Using a Template
- Setting Margins and Number of Pages
- Printing a Layout

Creating a New Layout

Select Layout from the Window menu. If one or more windows are open, MapInfo displays the New Layout Window dialog. There are three display options; One Frame for Window, Frames for All Currently Open Windows, and No Frames.

One Frame for Window

MapInfo places a single open window in the center of the Layout. You select the contents of this window through the pop-up menu next to the Layout for Window option. This pop-up lists all open windows. If you select a Mapper from this pop-up, MapInfo automatically places a map legend. You can reposition or delete this legend from the Layout.

Frames for All Currently Open Windows

MapInfo places all open windows in the Layout. Since MapInfo places windows in the approximate location and size as they appear in the MapInfo window, pre-arrange and pre-size the windows before you create your Layout.

Legends are positioned in the same way as Mappers, Browsers and Graphers. Their relative locations are preserved on the screen. However, if you have a Mapper or Grapher on the Layout window without a legend, MapInfo creates one automatically and positions it on its parent window. You can reposition it manually or delete it.

No Frames

You can also create a blank layout. If you create a layout window when no windows are open, MapInfo automatically creates a blank layout. If you want to create a blank layout when windows are open, choose the No Frames option in the New Layout Window dialog.

The Frame Tool

Use the Frame tool to draw window frames in the Layout window. A frame is a graphic object through which you can view a window. Each frame may contain the contents of one Mapper, Grapher, Browser, or legend. The Frame tool is only available when the Layout window is the active window.

Since a frame is a graphic object, you can :

- reposition it using the Select tool,
- resize it using the Select tool,
- change the line style of its border and fill,
- copy or cut the frame and paste it into another Layout window.

You can also position frames so that they overlap one another or overlap other graphic objects.

If you draw a frame when no windows are open, MapInfo places a blank frame in the Layout window. If you draw a frame when one or more windows are open, MapInfo displays the Frame Object dialog. Use the pop-up to choose which window to display in the frame.

To change which window is displayed in a frame, double-click on the frame with the Select tool. Use the pop-up in the Frame Object dialog to change the frame's contents.

Customizing a Layout

Displaying a Window in a Frame

You can control how a window displays in a Layout frame. Choose Display Options from the Layout menu. MapInfo displays the Layout Display Options dialog. There are three options which control how windows display in frames; Always, Only When Layout Window is Active, and Never.

Always

MapInfo always displays the contents of the frames in the Layout window. This option allows you to make changes in the Mapper and view those changes in the corresponding frame in the Layout.

Only When Layout Window is Active

MapInfo only displays the contents of frames when the Layout Window is the active window. When another window is active, MapInfo displays the titles of windows in the frames.

Never

MapInfo never displays the contents of the frames. It only displays the titles of the windows in the frames. Choose this option when rearranging or resizing frames. This option allows you to reposition and resize frames quickly without waiting for each one to redraw.

Controlling Zoom Level

There are various ways to change your zoom level while working in a Layout. Keep in mind that you are changing the overall zoom of the Layout window, not the zoom of individual windows in frames. For example, if you wanted to change the zoom level on a Mapper displayed in a Layout frame, you would change the zoom on Mapper window itself. The Mapper frame would then redraw with the new zoom level.

There are four ways to change the zoom level of the Layout window:

- Use the Zoom-in and Zoom-out tools. These tools work exactly as they do on other windows. You can click on the Layout window with the tools or marquee (draw a box around) areas of the Layout window.
- Set the zoom in the Display Options dialog. You can set the zoom anywhere between 6.3% and 800%.
- Use the View commands in the Layout menu (View Actual Size, View Entire Layout, Previous View).
- Use the number keys (1-8) to set the zoom level. As the numbers increase, the zoom increases geometrically. For example, press 1 to get a zoom of 6.3%, press 2 to get a zoom of 12.5%, and press 3 to get a zoom of 25%.

Setting Margins and Number of Pages

To set Layout margin, choose Layout Size from the Layout menu. Type in the desired margins. The gray area around the edge of the Layout indicates the margin. You are allowed to place objects in the margin. However, you may not be able to print those objects.

To create multiple page Layouts, choose Layout size from the Layout menu. Specify how many pages high and how many pages wide you want your layout to be. MapInfo uses dotted boxes to differentiate among pages in a multi-page layout. If you do not want MapInfo to display these page breaks, uncheck the Show Page Breaks option in the Layout Options dialog.

Ordering Overlapping Objects

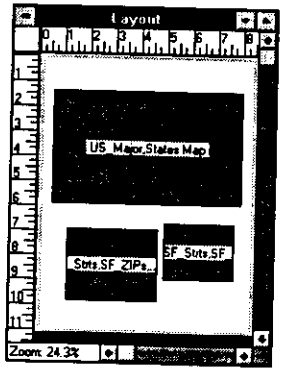
All objects in a Layout are ordered from front to back. Think of frames and other graphic objects as being stacked in the Layout. When you draw a new object it is automatically the front-most object, even if it is not overlapping any other objects in the Layout.

You can use the Send to Back and Bring to Front commands to change the ordering of objects. Click on an object with the Select tool. Choose the Bring to Front option to move the object into the foreground. Choose the Send to Back object to move the object into the background.

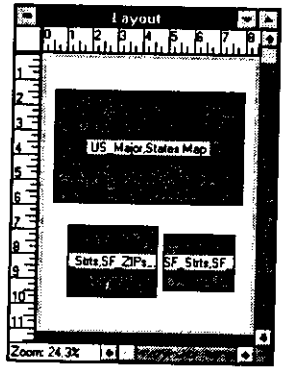
Aligning Objects

In order to have a professional looking Layout, you need to have its elements precisely aligned.

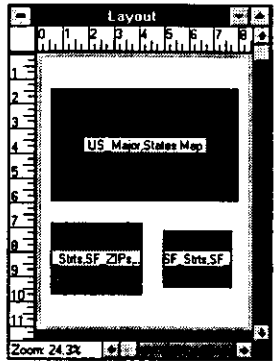
Select the objects you want to align and use the Align Objects options to specify vertical and horizontal alignment. You can perform multiple alignments in one Layout. Consider the following Layout:



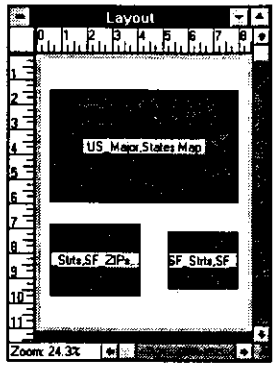
1. Three objects to be aligned.



2. Align the bottom two maps so that they are vertically centered with respect to each other.

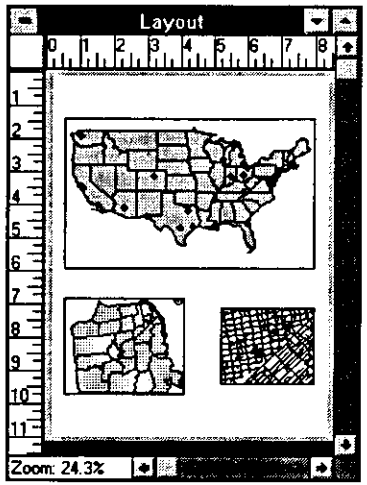


3. Align the top and bottom-left maps so that their left edges are horizontally aligned with respect to each other.



4. Align the top and bottom-right maps so that their right edges are horizontally aligned with respect to each other. The objects are now aligned properly.

This is the final result:



Creating a Template

A template is a Layout with empty frames. You can reuse a template, placing new windows in the frames with each use. Any titles and other annotations you add to the Layout will be preserved from one session to the next, as will the window frames.

To create a template, close all windows (using the Close All command) and choose Layout from the Window menu. MapInfo creates a blank layout. Place your frames, titles, labels, or other graphic objects into the Layout. When you are finished, save your template to a workspace.

Outputting a Layout

To output your layout, make the Layout window the active window. Select Print from the File menu.

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MapInfo Corporation
200 Broadway
Troy, New York 12180
(518) 274-6000

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MapInfo *for Macintosh*

Getting Started

MapInfo

Version 2.0

for Macintosh

MapInfo Corporation
Troy, New York

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MapInfo for Macintosh

Getting Started

MapInfo Corporation
Troy, New York

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Preface

Welcome to MapInfo version 2.0 for Macintosh. MapInfo version 2.0 for Macintosh is System 7 compliant and supports Apple Events, Balloon Help and the use of System 7 Preferences and Temporary folders.

System requirements are given on the next page.

This *Getting Started* manual contains all of the information you need to start using MapInfo. Specifically, this manual contains:

- Instructions for installing MapInfo
- A Tutorial which introduces you to MapInfo
- A list of the files that comprise the MapInfo software
- Instructions for using digitizing tablets with MapInfo for Macintosh
- A list of the sample data files that come with MapInfo

If you are unfamiliar with desktop mapping, you may want to perform the Tutorial as soon as you have installed the software. The Tutorial gives you enough information to let you use MapInfo productively. After performing the Tutorial, you can learn more about MapInfo by referring to these manuals:

MapInfo User's Guide - an overview of MapInfo's key concepts
MapInfo Reference - a detailed, alphabetic listing of MapInfo commands

The MapInfo documentation assumes that you are already familiar with Macintosh. If you are not familiar with Macintosh, please see your Macintosh documentation.

System Requirements

MapInfo for Macintosh runs on any Apple Macintosh computer that meets the following minimum requirements:

- running System 6.0.2 or later
- minimum 4 megabytes of memory
- minimum 7 megabytes of available hard disk space

Installation Instructions

Introduction

MapInfo comes on six diskettes, divided into two sets as follows:

- MapInfo Program (2 disks): the program plus four support files.
- Tutorial and Sample Data (4 disks): useful MapInfo data products, including world and state boundaries, top 500 cities in the United States, ZIP Code locations for the entire U.S., and more, as well as some tutorial-specific files. This set also includes some interesting data sets to show different MapInfo applications.

You should install sets 1 and 2; they require about 5 MBytes on your hard drive.

You can simplify installation by creating a MapInfo folder on your hard disk. The folder should not be inside any other folders, and should be called "MapInfo". If this folder isn't on your hard disk, the Installer will ask you to choose the folder where you want MapInfo installed.

To begin the installation, insert the MapInfo Program 1 disk and double-click on MapInfo Installer. When prompted, insert the second disk. You can install the other set by inserting the first disk of that set and repeating the process.

Note: The Installer decompresses and pastes together several files. It does NOT make any changes to your System Folder or System file. You must run the Installer; it does not suffice to simply drag the files to your hard disk.

Starting MapInfo

Double-click on the MapInfo icon to start the application.

MapInfo

Lesson 1 Introduction

Summary of Lesson 1

In this lesson, you will learn how to:

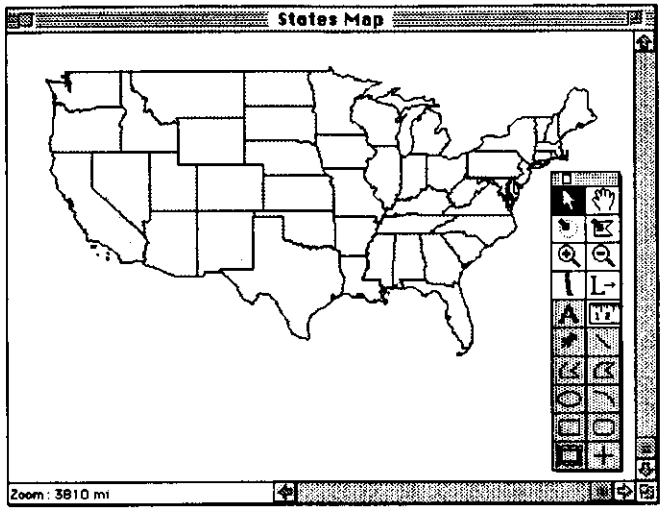
- Open a table file (U.S. states), display it as a map, and overlay it with symbols representing city locations
- Move the map image around the screen
- Zoom in and out on different areas of the map
- Add labels and lines designating states and cities. Get additional information about a state or city
- Save your work so you can restart the tutorial where you stopped

Approximate time to finish lesson: 20 minutes

Displaying a File as a Map

Perform the following steps to open a table file and display it as a map:

1. Choose Open from the File menu. The Open Table dialog is displayed.
2. Open the Data Folder and select States from the list box.
3. Click Mapper only if it's not checked in Windows to Use, at the bottom of the window.
4. Click Open. The map of the United States displays.



A map of the United States

Click the Mapper's zoom box (upper right corner of Mapper window) to display the map at full size.

Moving a Map Image

Use the vertical scroll bar on the right side of the map window to move the map image North and South. Use the horizontal scroll bar on the bottom of the map window to move the map image East and West (or click the vertical or horizontal arrows for finer control.) You can also use the Grabber tool to move the map image.

To move the map image using the Grabber tool (hand icon):

1. Select the Grabber tool from the Tool palette. When you move the cursor over the map window, a hand cursor appears.

2. Click anywhere on the map window, hold down the mouse button, and drag the mouse. The map moves in the direction that you drag. When you release the mouse button, the map redraws in its new position.

To zoom in (or magnify) an area of the map, use the Zoom-in tool:

1. Select the Zoom-in tool from the Tool palette. When you move the cursor over the map window, a magnifying glass cursor containing a plus sign appears.

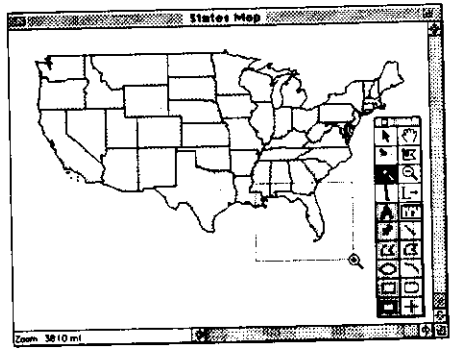
2. Click on the state of Florida which is the bottom right state. MapInfo centers the state of Florida in the window and redraws the map

The Zoom-in tool approximately doubles the scale for the area beneath the tool: Objects are twice as high, twice as wide, with four times the area.

You can also use the Zoom-in tool to draw a box around the specific area you want enlarged:

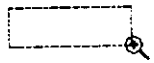
3. With the Zoom-in tool selected from the Tool palette, click above the upper-left corner of the state of Florida and drag the cursor diagonally.

Marquee using the tool

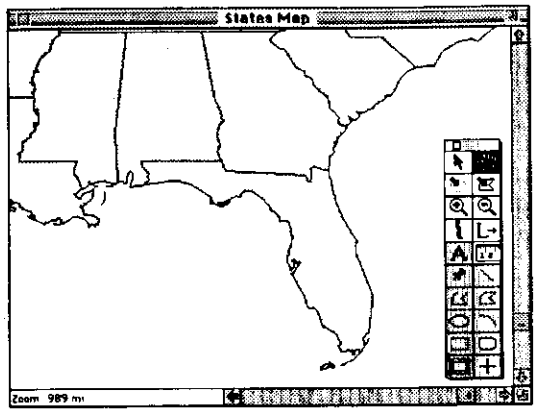


A Zoom-in marquee box around Florida

4. Draw a box between your starting point and the new cursor position.



5. When you have all of Florida in the box, release the mouse button. The specified area displays, centered in the window.



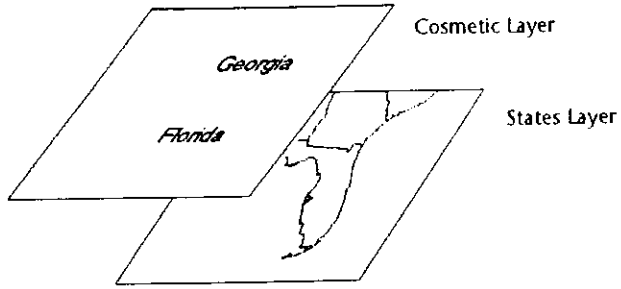
MapInfo zooms in on Florida

The Zoom-out tool (magnifying glass containing a minus sign) works just like the Zoom-in tool. Clicking on the map with this tool expands your view of the map, making map objects smaller.

If you tested the Zoom-out tool, use the Zoom-in tool to enlarge Florida, putting it back in the center of the screen, before going on to the next section.

Adding or Removing Labels & Text

You can place labels on your maps by using the data values in any column in your database. Use the Label tool (L plus arrow icon) in the Tool palette or the Draw Autolabels command in the Map menu. These labels always go into a special overlay layer, called the Cosmetic Layer. You can think of the layers of a map as you would the transparent film sheets used on an overhead projector. The Cosmetic Layer is always the top layer of your maps.



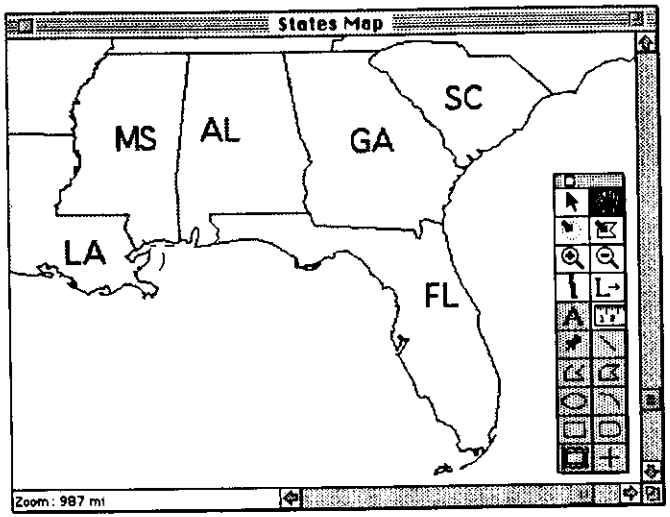
You can also type the text you want directly on screen. This text always goes into the one layer that is editable, as do objects you draw. You can always choose which layer is to be editable.

To label states with their abbreviations:

1. Choose the Label tool and position the cursor over a state, where you want the label.

2. Click the mouse. The correct abbreviation, taken from the database file appears where you clicked.

You can click as many places as you like.



Zoomed map with labels added

3. Click several other states to see their abbreviations.

You can remove the last label you added by choosing Undo from the Edit menu.

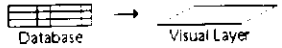
Layers

When you combine a variety of data into a single map, you can see unique relationships among the data. You can combine sets of data by mapping each set into its own layer of a map. Let's add cities as an overlay to the map of U.S. states.

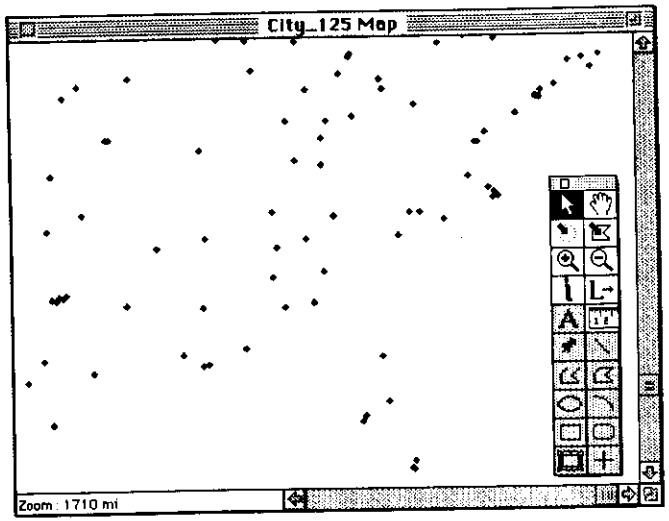
To add a layer to your map:

1. Choose Open from the File menu.

2. Select City_125 and click OK. MapInfo opens a map of city locations only, each represented by a small black diamond.



Notice there is no underlying US map, only city locations.

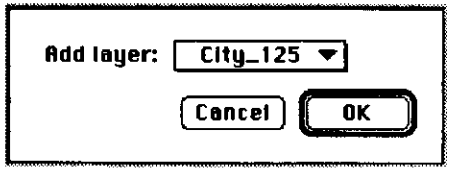


City locations with no underlying U.S. map

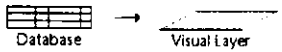
3. Click the zoom box on the states map.

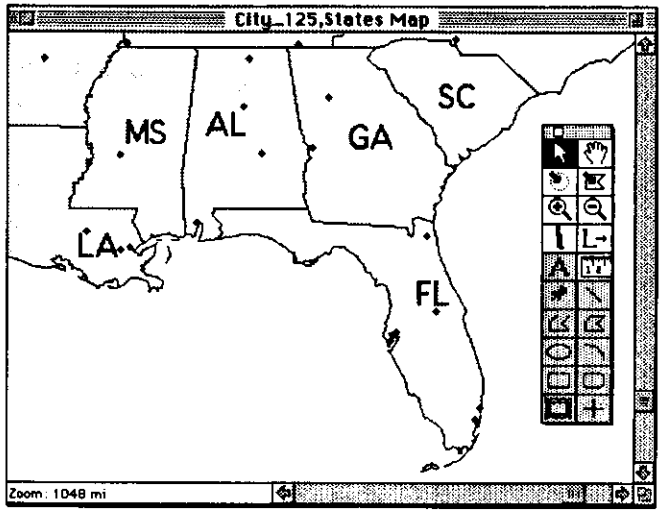
4. Make sure that the Mapper is the active window by clicking on the Mapper's title bar. Choose Layer Control from the Map menu, and click on Add. The Add Layer dialog is displayed.

The states map may be obscured by the city_125 map. You can choose Tile from the Window menu to make it easier to find.



5. Click the arrow to display the list and click city_125. Click OK twice. The cities display against the background of your states map.





U.S. cities shown against an underlying U.S. map

In Lesson 2, you will use this map to graphically show the differences in the data for different states and for different cities.

Before saving your work, you can briefly apply what you've learned about the Label tool by identifying some cities. For example, you can create labels with arrows pointing to the object they are labeling. These are called callouts. If you want to label objects that are very close together, callouts can help distinguish which label is associated with each object.

To create labels with callout lines:

1. Select the Label tool from the Tool palette and click on a few city symbols.

To create callouts, the Cosmetic Layer must be editable.

2. Choose Layer Control from the Map menu. If the Cosmetic Layer is not marked as Editable, highlight the Cosmetic Layer in the Layer list box and click Settings. Click the Editable option. Click OK twice to exit the Layer Control dialog.
3. Click the Select tool from the Tool palette and double-click the label of your choice. The Text Object dialog displays.

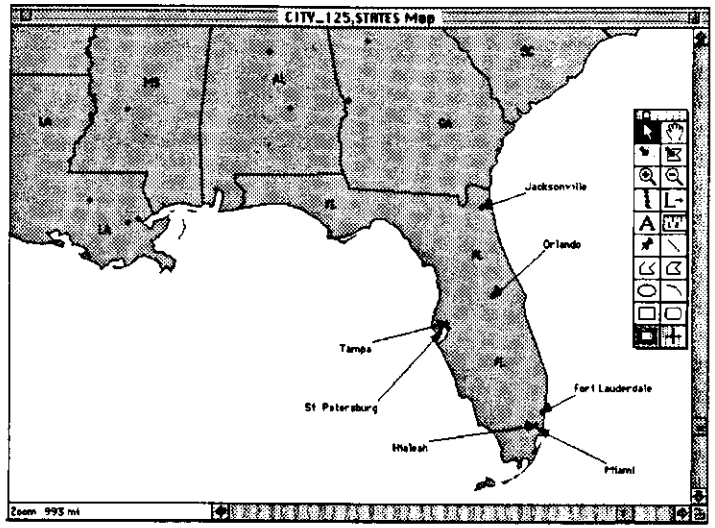
4. In the bottom right box (Label Line), click Arrow Line and then click OK.
5. Drag your label away from the symbol. A callout line displays with an arrowhead pointing to the city's location.

As you adjust the label position, the line's angle automatically adjusts.

As the next map shows, you can repeat this process with other cities. It is particularly useful when the map objects are too densely packed to distinguish them or their labels. You can also draw your own callout lines, using the Line tool from the Tool palette.

Remember that all labels reside in the Cosmetic Layer. The Text that you type and the objects that you draw reside in whatever layer is editable at the time. The editable layer is the Cosmetic Layer at this point in the lesson. You can save everything from the Cosmetic Layer into a table, using Save Cosmetic Objects from the Map menu which is described later.

Try repeating the above process for a few other cities. Your map should look something like this:



Callout lines

Getting Data about Map Objects

Every MapInfo map is based on one or more table of information. These tables contain geographic data that can be displayed on the screen. Each layer (except the Cosmetic Layer) represents a separate table. Most tables also contain data that is linked to its map objects. The same table that supports the map also supplies the data for the Browser and Grapher views.

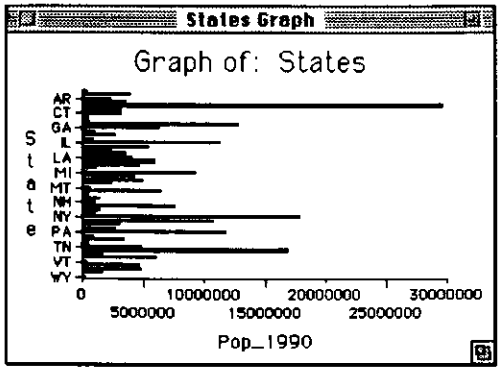
States Browser

State	State_Name	Pop_1980	Pop_1990
AK	Alaska	401851	550043
AL	Alabama	3893888	4040587
AR	Arkansas	2286435	2350725
AZ	Arizona	2718215	3665228
CA	California	23667902	29760021
CO	Colorado	2889964	3294394
CT	Connecticut	3107576	3287116
DC	District of Columbia	638333	606900
DE	Delaware	594338	666168
FL	Florida	9746324	12937926
GA	Georgia	5463105	6478216
HI	Hawaii	964691	1108229
IA	Iowa	2913808	2776755
ID	Idaho	943935	1006749
IL	Illinois	11426518	11430602
IN	Indiana	5490224	5544159
KS	Kansas	2363679	2477574

records 1 - 17 of 51

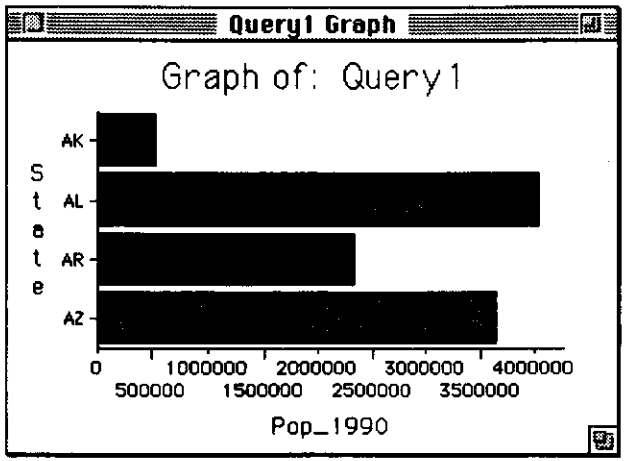
Browser representation of the states table

The Browser for the States file has 51 rows, one for each state, and 10 columns of data for each state. The data from any numeric column (or a combination of columns) can be presented as a bar, line, area, or pie graph.



Graph representation for the 1990 population column of the states database

As you can see, it is difficult to interpret a graph with so many records. With MapInfo, you can control which and how many records you want to graph. This makes the graph easier to interpret. Lesson 3 describes this process.

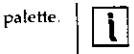


Graph representation for the 1990 population column of the four states

When you create a graph, you can make important comparisons among records. However, you may only want quick information about a specific object or record in your database. The Info tool provides quick information on one map object or Browser record at a time (state or city, for example), displaying the data after each click of the tool.

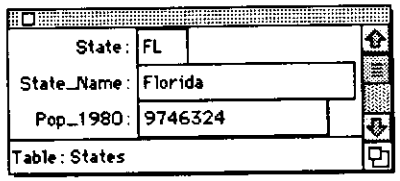
To display information about an object on the map:

1. Select the Info tool ("i" icon) from the Tool palette.



The states database has 10 fields, including population statistics, total area, and business statistics.

2. Position the cursor over Florida and click. The Info window is displayed, containing all data associated with that object.



3. Click on Miami, and then on a different state or city. Every time you click on an object, the data displays for that object, replacing the prior contents of the Info window.

When there is too much data to fit in the Info tool window, a scroll bar appears. You can click the scroll bar to see more data, or simply make the window bigger.

Saving Your Work

Saving your work is a good idea because accidents and interruptions happen. It's better to restart from where you were 20 minutes ago than to have to re-enter the work you did over the past 2 hours.

MapInfo allows you to save your place by creating a workspace. The workspace file consists of a list of each table you've been using and the actions needed to re-create your MapInfo desktop.

Changes to tables or the Cosmetic Layer must be saved separately because the workspace does not update tables or save the Cosmetic Layer. In the following example, you create a new table to store cosmetic objects (labels drawn to the Cosmetic Layer). You must create this new table before saving the workspace.

Once you save your table changes and workspace, you can start future sessions by choosing Add Workspace from the File menu.

To Save Your Labels:

1. Choose Save Cosmetic Objects from the Map menu. The Save Cosmetic Objects dialog is displayed. Select New... from the menu.

   Since you have not changed the state or city_125 tables, you do not have to save them.

2. In the Save Objects to Table dialog, type the name COSLAYER for the new table. Click Save. The COSLAYER table is added to the Mapper.

   If you now look at the Map menu, you see that the Save Cosmetic Layer option is grayed out, indicating no such objects are present.

3. Choose Close from the File menu. Select COSLAYER from the Close Table dialog and click OK.

   When you select Close, Close All, or Quit from the File menu, you are prompted you to save your changes.

To save your table setup to a workspace:

1. Choose Save Workspace As from the File menu. The list of workspaces already saved is displayed.

2. Type the workspace name, lesson_1.wor. Click OK.

If you wish to take a breather, this is a good time. Choose Close All or Quit from the File menu. When you are ready to continue, please go to Lesson 2.

Lesson 2 Making Data Meaningful

Summary of Lesson 2

In this lesson, you will learn how to:

- Open the workspace saved at the end of Lesson 1
- Remove layers from the map, and later add them back in
- Use data from the tables to show the different values of map objects by
  - -- shading regions with colors or patterns
  - -- varying symbol size in proportion to the data
- Find cities by name
- Search for objects within a given radius and create graphs for data within that radius
- Save your work

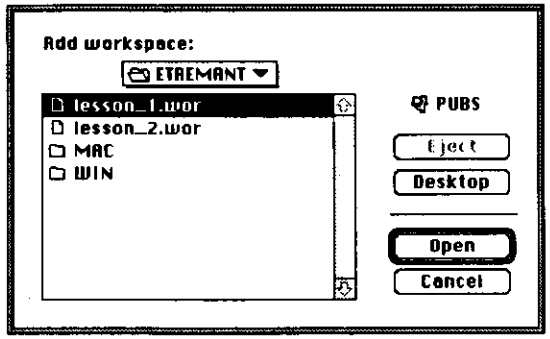
Approximate time to finish lesson: 40 minutes

Restarting the Tutorial

Do the following steps to reopen the tables and redisplay the maps:

1. Choose Add Workspace from the File menu. The Add Workspace dialog displays.

   If you have not performed Lesson 1, choose Open from the File menu and open the states and the city_125 tables.



Add Workspace dialog

2. Select lesson_1.wor from the File list box, and click Open. The workspace is displayed.

Maximize the map by clicking its zoom box (upper right). The map displays full size.

You will now assign different colors to each state, based on that state's population. It is easier to distinguish colors if you temporarily remove the City_125 table from the Mapper.

To remove a map layer:

1. Choose Layer Control from the Map menu and click the City_125 layer in the Layer list box. Click Remove at the bottom of the dialog and click OK. MapInfo displays the map without cities.

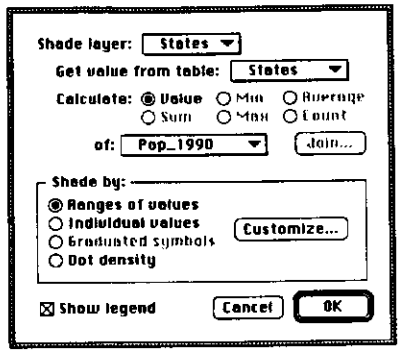
The City_125 table is still available until you close it with the Close command in the File menu.

As mentioned above, you are now ready to shade each state according to its population. However, it makes little sense to shade each state a different color based on its population. Instead, organizing the states into four different groups, based on their population and assigning each group its own color, makes comparisons among states more meaningful.

Now organize the states into groups according to population and assign a different color to each group:

1. Choose Shade by Value from the Analyze menu. The Shade by Value dialog displays. The Shade layer menu displays the states table, which is the layer to be shaded.

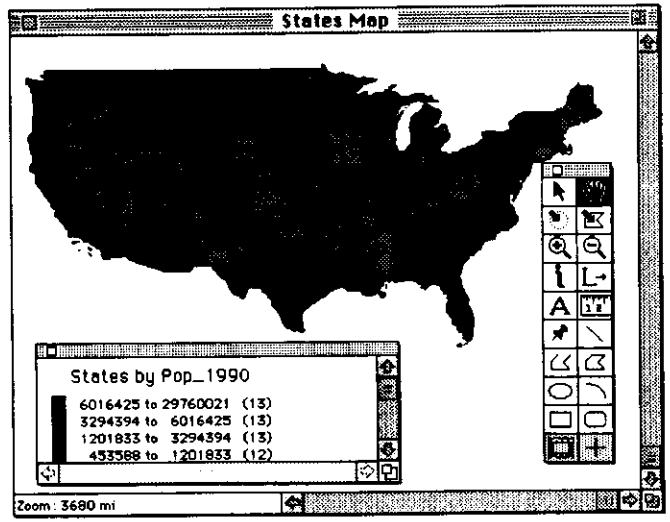
You can shade the states with any data in the states table. To display the list of columns, click on the popup menu next to the word "of".



Shade by Value dialog

2. Click the popup menu next to the word "of" and select Pop_1990 in the list of column names from the STATES table. Choose the Range of values option under Shade by. Click OK.

Click Customize to choose colors, patterns and symbols for your map's areas and symbols.



Each population range is assigned a unique color

The map you created groups the states into four different ranges, based on population. Each range is assigned a unique color. A legend is also created, which explains what each color represents.

To remove the shading:

1. Return to the starting point by choosing Layer Control from the Map menu and select the states layer.
2. Click Settings and the Layer Settings dialog is displayed. Click Default in the Display Mode area. Click OK and OK again to exit. The shading is removed and the map returns to its default display.
3. Perform steps 1 and 2 above again but choose Universal instead of Default. Click OK to see the effects on the map.

Note the word Shading in the Display column.

Notice this is also the dialog which allows you to make a map layer editable.

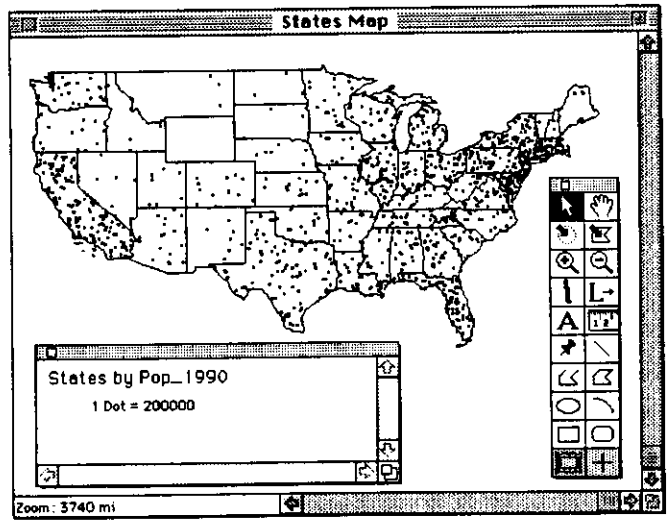
Now the map has no color, just the boundaries.

Now shade the states table again according to population. Instead of grouping the states and assigning a unique color to each group, use dots to represent population. Each dot represents a certain number of people. For example, if each dot represents 100,000 people and State A has a population of 1 million, MapInfo places ten dots within the boundary of State A. This is referred to as Dot Density.

To shade a map using Dot Density:

1. Choose Shade by Value from the Analyze menu. The Shade by Value dialog is displayed.
2. Choose Pop_1990 from the of menu.
3. In the Shade by box, click Dot Density, and then click OK.

Dot Density randomly distributes the dots throughout the boundary. For example, the dots will be evenly distributed around the state of New York. They will not be concentrated in the New York City area.



Dot density presentation of Pop_1990 data from states table

This map gives a different feel for density of population. With MapInfo, you choose the type of shading that best serves your purposes.

The examples in this lesson have been area focused, but many maps describe important relationships based on points or lines. Cities can be considered points. The next example uses Shade by Value to distinguish city population by the size of the symbol. You will assign symbols, varying in size, to cities in the city_125 table, based on city population.

Before that happens, you must first add the city_125 table to the Mapper. To make the cities easier to see, you should also change the display of the states map.

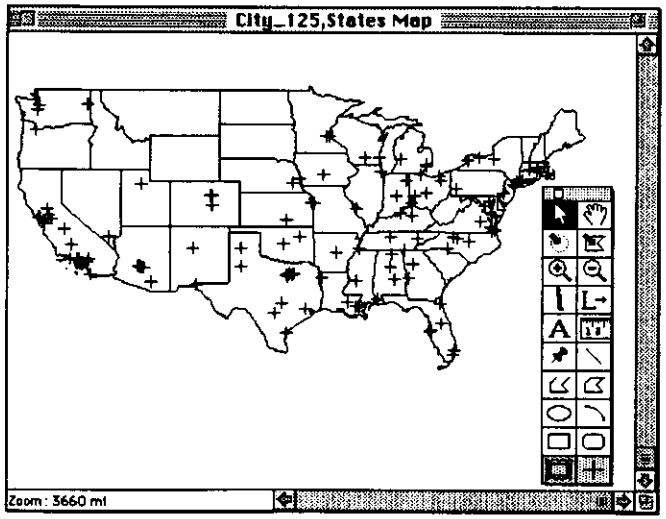
To change the display of the states map and add a layer to a Mapper:

1. Choose Layer Control from the Map menu, select the states layer and click Settings. The Layer Settings dialog is displayed.
2. Click Universal in the Display Mode area, and click OK.
3. Click Add. The Add Layer dialog displays.
4. Select City_125 from the popup menu and click OK. Click Settings. Click Universal in the Display Mode area, and click OK twice.

You can select any open table.

An additional layer is automatically placed on top, just below the Cosmetic Layer.

Your map should now look like this:



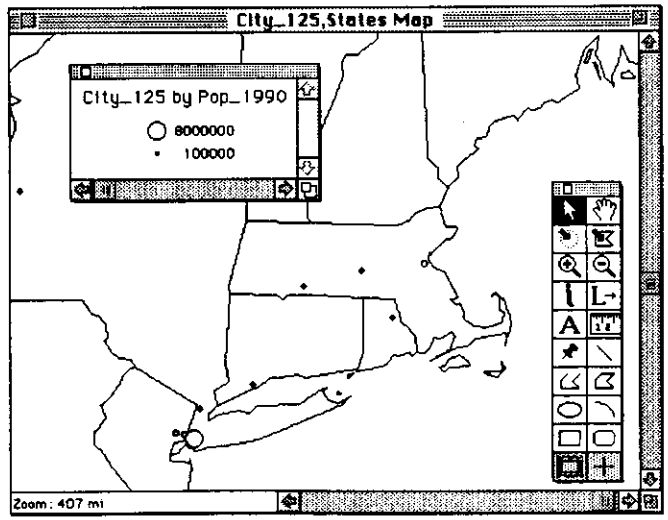
Cities displayed in Universal Mode

Assign proportionally sized symbols to each city according to population:

1. Choose Shade by Value from the Analyze menu. Choose city_125 from the Shade layer menu.
2. Choose Pop_1990 from the of menu. Choose the Graduated symbols option in the Shade by menu. Click OK.

Each symbol will be sized according to the data value in the Pop_1990 column of the city_125 table.

Your map should now look like this:



Graduated symbols map, zoomed in on New England. Each symbol is sized according to city population.

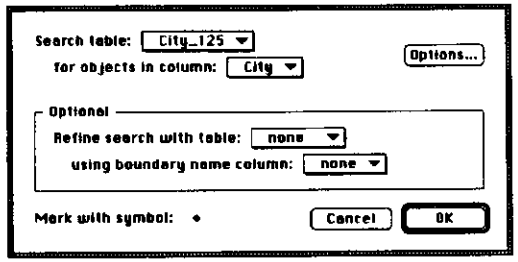
The remaining exercises in this lesson illustrate additional tools and commands that are useful for analysis.

Locating Map Objects

Suppose you want to locate four cities on the United States map: Boston, Massachusetts, San Francisco, California, New Orleans, Louisiana, and Detroit, Michigan. If you are unfamiliar with their location on the map, how can you find them?

With the Find command in the Analyze menu you can search for map objects using any data column in the table. To locate these cities, type in each city name into the Find dialog. MapInfo marks each city with a symbol, indicating its location on the map.

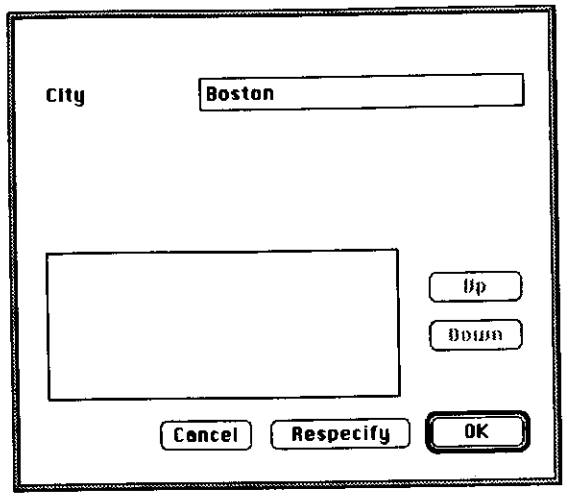
To find a city on the map:



The first Find dialog

1. Choose Find from the Analyze menu. The Find dialog is displayed.
2. Click the Search table menu and select city_125.
3. Click the for objects in column menu and select CITY. Click OK. A second Find dialog is displayed.

You can refine your search by specifying a boundary in the Refine search with table menu and specifying a city name and a boundary name.



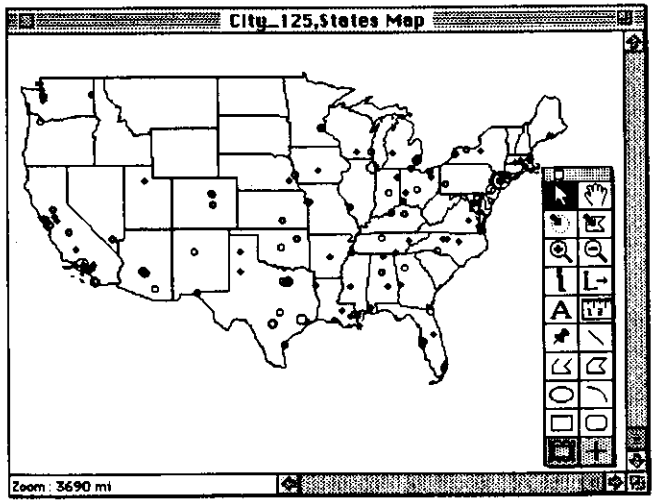
The second Find dialog

4. Type Boston in the City box and click OK. A black diamond appears in eastern Massachusetts.
5. Press Command-F, the keyboard shortcut for Find, and type San Francisco. Click OK. A black diamond appears in northern California.
6. Repeat the process for New Orleans and Detroit.

Notice that when you select the Find command a second time, MapInfo skips the first Find dialog and goes directly to the second Find dialog.

To search for objects in another table (or to respecify your search), click Respecify in the second Find dialog.

Your map should now look like this:



The cities of Boston, San Francisco, Detroit, and New Orleans located in Find

You can find additional information about the cities located within the vicinity of San Francisco, California. Make a subset table, a query table, of all cities located within a 60 mile radius of San Francisco. Use the Radius Search Select tool to identify these cities. Use the Zoom-in tool to magnify the state of California.

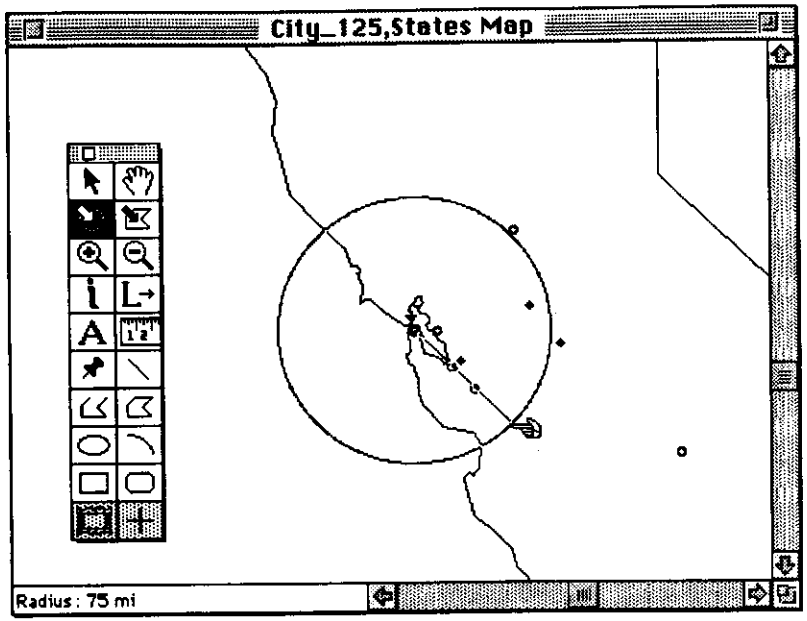
To identify the cities and population in a given area:

1. Select the Radius Seach Select tool, a dotted circle+arrow icon, and click on San Francisco. As you drag the mouse, a radius and circle are drawn.

The length of the radius appears in the Radius box at the lower left corner of the map.

2. Drag the mouse until the radius shown is approximately 75 miles. Release the mouse button.

All cities within that circle are highlighted after you release the mouse button.



All cities within a 75 mile radius of San Francisco

3. Choose Browse from the Window menu. The Browse dialog is displayed. Click on the menu and choose Selection. Click OK.

MapInfo stores the selected records in a temporary table called Selection.

4. The selected records are displayed in a Browser.

When you display a selection table in a Browser, Mapper, or Grapher, MapInfo renames the temporary table Query1.

QUERY1 Browser

City	State	Num_HU_90	Pop_1990
San Jose	CA	259365	782248
San Francisco	CA	328471	723959
Oakland	CA	154737	372242
Stockton	CA	72525	210943
Fremont	CA	62400	173339

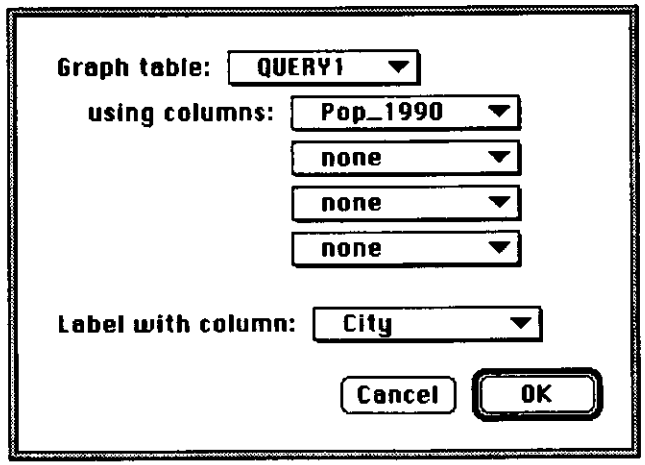
records 1 - 5 of 5

You can graph these cities for easier size comparison directly from this Browser.

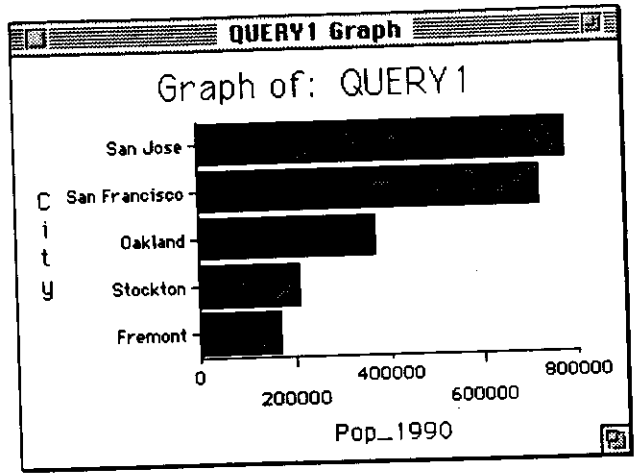
To graph data from a Browser:

1. Choose Graph from the Window menu. The Graph Table dialog is displayed.
2. Choose Query1 from the Graph table menu.
3. Choose Pop_1990 from the using columns menu. Choose City from the Label with column menu. Click OK.

You can graph more than one column for each data record.



A graph displays five cities and their populations.



Saving Your Work

You can save your work by saving your tables to a workspace.

Once you have saved your tables to a workspace, you can start where you left off by choosing Add Workspace from the File menu.

To save your workspace:

1. Open the File menu.
2. Choose Save Workspace As. The list of workspaces already saved in the directory is displayed.
3. Type the workspace name lesson_2.wor. Click Save.

Choose Quit from the File menu. If you wish to take a breather, this is a good time. When you are ready to continue, proceed to Lesson 3.

Lesson 3 Selections

Summary of Lesson 3:

In this lesson, you will learn how to:

- Reload the work you saved at the end of Lesson 2. Your maps will appear as you left them
- Create and extend selection conditions, using various methods to identify different regions and to select data (specific values or ranges) from different data columns, displaying the results on the map.
- Save your work, so you can start where you left off

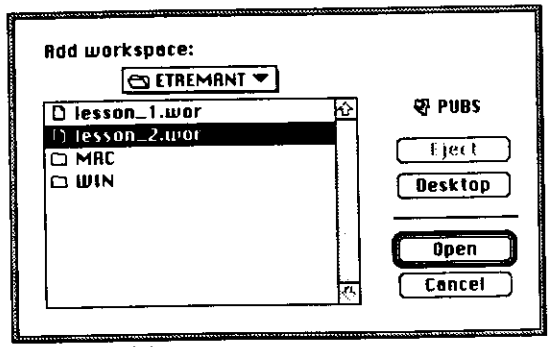
Approximate time to finish lesson: 30 minutes

Restarting the Tutorial

Perform these steps to reopen the tables and redisplay the maps:

1. Choose Add Workspace from the File menu. The Add Workspace dialog is displayed.

If you have not performed Lesson 2, choose Open from the File menu and open the states and the city_125 tables.



Add Workspace dialog

2. Select lesson_2.wor from the File list box, and click Open. The workspace is displayed.

Click the zoom box in the upper right corner of the Mapper. The full size map displays.

You will be creating a subset of all states which have a median income over $25,000. It is easier to see the effects of your selection expressions on the states if the city_125 layer is removed:

To remove a map layer:

1. Choose Layer Control from the Map menu and click the city_125 layer in the Layer list box. Click Remove at the bottom of the dialog and click OK. The map without cities is displayed.

Setting Up the Mapper and Browser

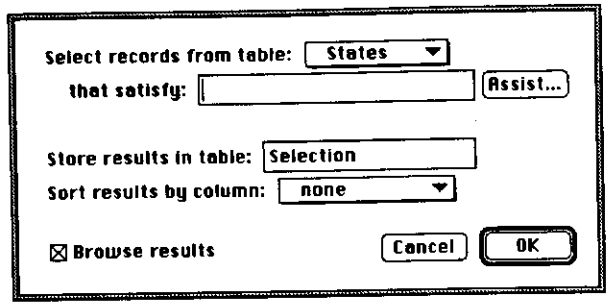
1. Click the Key in the lower left corner of the Mapper. The Change View dialog displays.
2. Type 5555 in the box next to Zoom (window width). Click OK.
3. Choose Browse from the Window menu. Click on the menu and choose States. Click OK.
4. Choose Tile Windows from the Window menu.

Zoom is the width of what the window shows.

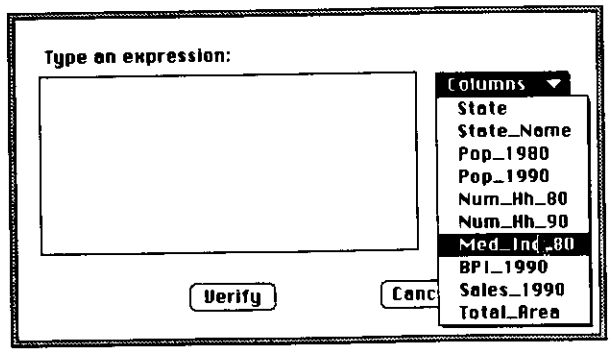
MapInfo spaces the windows so that both are in full view.

To select states with a median income over $25,000:

1. Choose Select from the Analyze menu. The Select dialog displays.

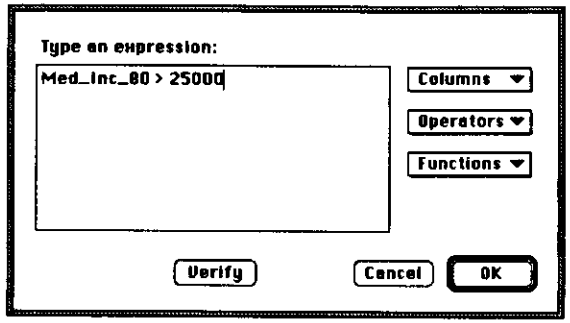


2. Choose states from the Select records from the table menu.
3. Click on Assist. The Expression dialog displays.



4. Select Med_Inc_80 from the Columns menu.
5. Choose > (greater than sign) from the Operators menu.
6. Type 25000.

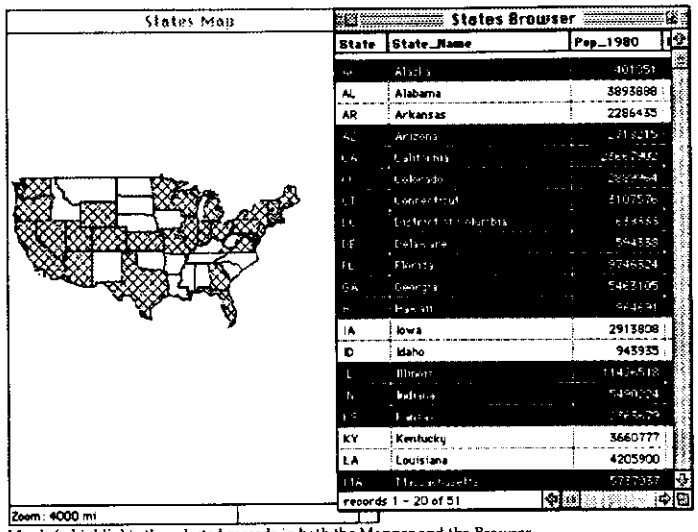
Do not include commas or dollar signs.



7. Click Verify to confirm the syntax of your expression. Click OK.
8. Uncheck the Browse results option, since there is a states Browser open. Click OK.

To manually edit the expression click on it with the I-beam cursor.

The following results display:

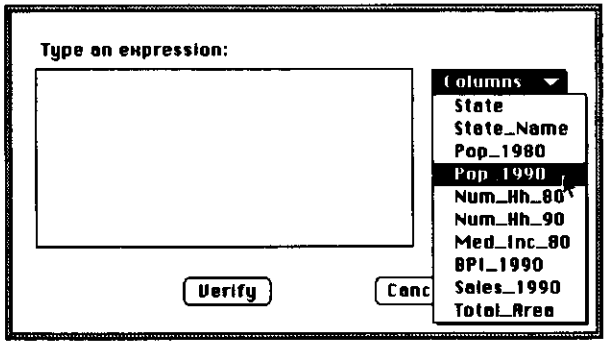


MapInfo highlights the selected records in both the Mapper and the Browser

You want to find out which states had a decrease in population between 1980 and 1990. There is no column in the states table with that figure. However, you do have a column with 1980 population and 1990 population. You can compute population decrease using these two columns.

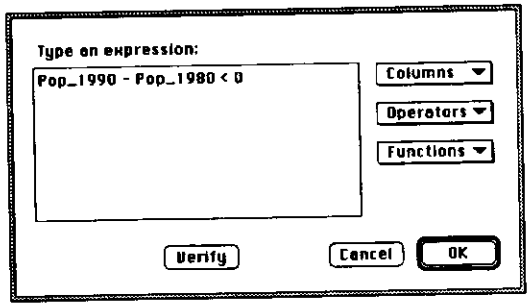
To select all states that had a decrease in population between 1980 and 1990:

1. Choose Select from the Analyze menu. The Select dialog displays.
2. Choose states from the Select records table menu.
3. Click on Assist. The Expression dialog displays.



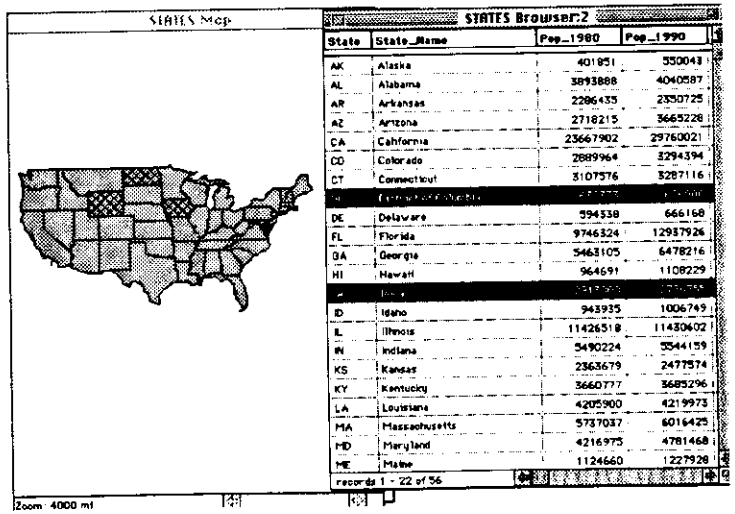
4. Select Pop_1990 from the Columns menu.
5. Choose - (minus sign) from the Operators menu.
6. Choose Pop_1980 from the Columns menu.
7. Choose < (less than sign) from the Operators menu.
8. Type 0.

The verbal equivalent to this expression is "Select all states which had a population decrease between 1980 and 1990."



9. Click Verify to confirm the syntax of your expression. Click OK.
10. Uncheck the Browse results option, since there is a states Browser open. Click OK

The following results display:



State	State_Name	Pop_1980	Pop_1990
AK	Alaska	401851	550043
AL	Alabama	3893888	4040587
AR	Arkansas	2286435	2350725
AZ	Arizona	2718215	3665228
CA	California	23667902	29760021
CO	Colorado	2889964	3294394
CT	Connecticut	3107576	3287116
DE	Delaware	594338	666168
FL	Florida	9746324	12937926
GA	Georgia	5463105	6478216
HI	Hawaii	964691	1108229
ID	Idaho	943935	1006749
IL	Illinois	11426518	11430602
IN	Indiana	5490224	5544159
KS	Kansas	2363679	2477574
KY	Kentucky	3660777	3685296
LA	Louisiana	4205900	4219973
MA	Massachusetts	5737037	6016425
MD	Maryland	4216975	4781468
ME	Maine	1124660	1227928

records 1 - 22 of 56

MapInfo highlights the selected records in both the Mapper and the Browser

MapInfo selected only four states: Iowa, District of Columbia, Wyoming, and North Dakota.

You want to select all cities within a 250 mile radius of Buffalo, New York that have populations greater than 200,000.

To perform this exercise:

1) Add the City_125 layer to your current map
2) Locate Buffalo, New York on the map
3) Identify all cities that fall within 250 miles of Buffalo
4) Select the cities that have populations greater than 200,000

First, make sure the Mapper is active. Click on its title bar. Next, add the City_125 layer to your Mapper:

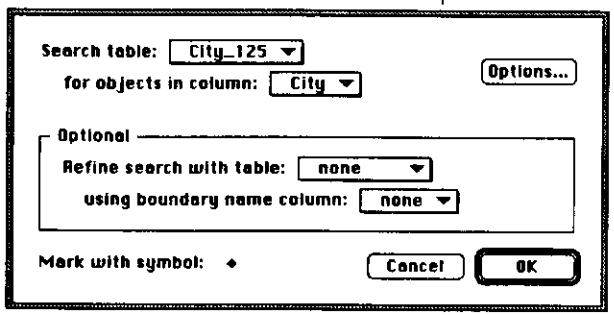
1. Click on the Mapper to make it active.
2. Choose Layer Control from the Map menu.
3. Click on Add. The Add Layer dialog displays.

   You can select any open table.
4. Click the arrow, click City_125, and click OK twice.

   Added layers are automatically placed on top, just below the Cosmetic Layer.

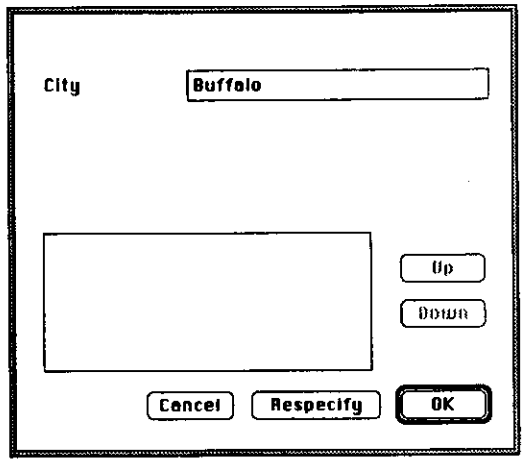
Next, locate Buffalo, New York on the map:

1. Choose Find from the Analyze menu. The Find dialog displays.



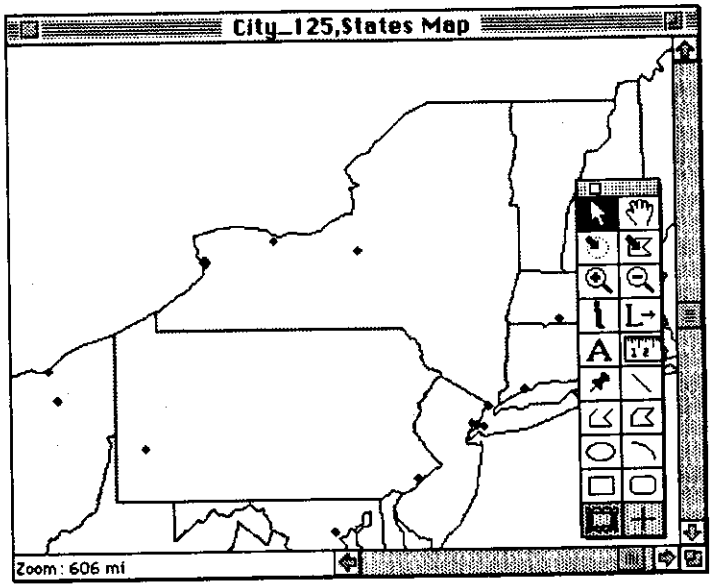
The first Find dialog

2. Click the Search table menu and select city_125.
3. Click the for objects in column menu and select CITY. Click OK. A second Find dialog displays.



The second Find dialog

4. Type Buffalo in the City box and click OK. A black diamond appears in western New York.
5. Using the Zoom-in tool, magnify western New York.

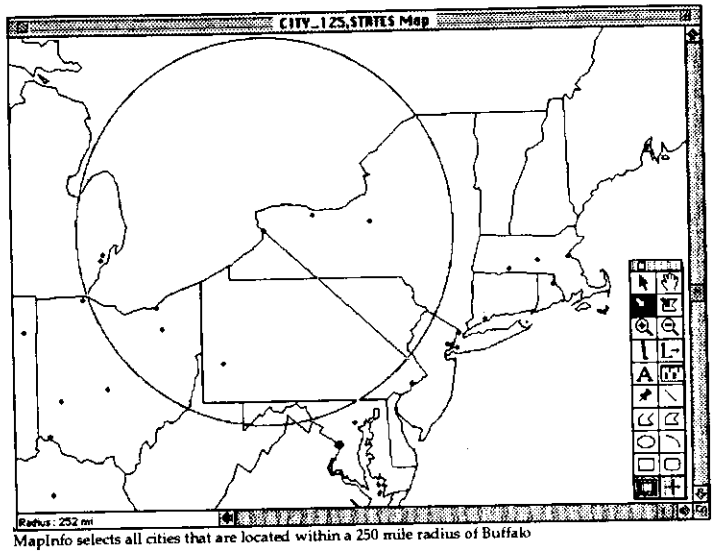


The large black diamond represents Buffalo, New York

Now that you have located Buffalo, New York, use the Radius Search Select tool to select all cities that fall within a 250 mile radius of Buffalo:

1. Select the Radius Search Select tool.

2. Drag the mouse until the radius shown is approximately 250 miles. Release the mouse button.



MapInfo selects all cities that are located within a 250 mile radius of Buffalo

3. Choose Browse from the Window menu. The Browse dialog is displayed. Click on the menu and choose Selection. Click OK.

4. The selected records in a Browser display. Since you have already performed two selections, MapInfo names this query Query3.

MapInfo stores all the records selected with the Radius Search Select tool in a temporary table, Selection.

Notice that when you display a selection table in a Browser, Mapper, or Grapher, MapInfo renames the temporary table, Query n.

The following selection table displays:

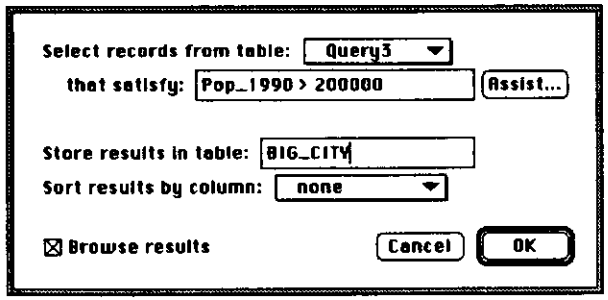
Query3 Browser

City	State	Num_HU_90	Pop_1990
Detroit	MI	410027	1027974
Cleveland	OH	224311	505616
Pittsburgh	PA	170159	369879
Buffalo	NY	151971	328123
Rochester	NY	101154	231636
Akron	OH	96372	223019
Syracuse	NY	71502	163860
Warren	MI	56189	144864

records 1 - 8 of 8

Finally, you can select those cities with population over 200,000 by using the Query3 table which contains all cities that fall within a 250 mile radius of Buffalo,:

1. Choose Select from the Analyze menu. The Select dialog is displayed.



2. Choose Query3 from the Select records from table menu.
3. Click on Assist. The Expression dialog is displayed.
4. Select Pop_1990 from the Columns menu.
5. Choose > (greater than sign) from the Operators menu.

6. Type 200000.
7. Click Verify to confirm the syntax of your expression. Click OK.
8. Type the name BIG_CITY in the Store results in table box. When MapInfo creates a temporary selection table, it will be called BIG_CITY.
9. Check the Browse results option, if it is not already checked. Click OK to initiate the selection.

Do not use commas.

The following results display:

BIG_CITY Browser

City	State	Num_HU_90	Pop_1990
Detroit	MI	410027	1027974
Cleveland	OH	224311	505616
Pittsburgh	PA	170159	369879
Buffalo	NY	151971	328123
Rochester	NY	101154	231636
Akron	OH	96372	223019

records 1 - 6 of 6

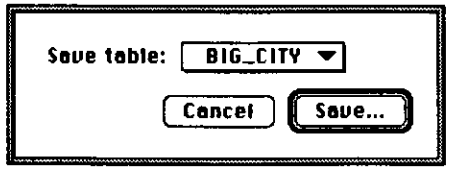
Lesson Four describes geocoding. With geocoding you establish map locations for data. The data then corresponds to the boundaries, locations, or coordinates available in other maps, such as state boundaries or city streets.

Saving Your Work

Since the next tutorial lesson does not start where this one left off, there is no need to save our tables to a workspace. However, save the BIG_CITY temporary selection table to a permanent table. Your selections are permanently lost if you do not save selection tables before you close the tables they are derived from.

To save a temporary selection table as a permanent table:

1. Choose Save Copy As from the File menu. The Save Table dialog is displayed.



2. Click the menu and choose BIG_CITY. Choose Save.
3. The Save dialog is displayed. You can type a new name for the table, or use BIG_CITY. When you are finished, click Save.
4. Choose Quit from the File menu.

If you wish to take a breather, this is a good time.

Lesson 4 Linking Your Data: Geocoding

Summary of Lesson 4:

In this lesson, you will learn how to:

- Load new map and data files to display your data on a map
- Geocode your data: link the position of each data record to a physical location on the map
- Display your data on the map, first as individual points and then as shaded regions representing ranges
- Save your work so you can restart where you left off

Approximate time to finish lesson: 40 minutes

Restarting the Tutorial

For this lesson, assume you have a database of customers in San Francisco with ZIP codes and street maps. How do you go about displaying the locations of these customers on either or both of these maps?

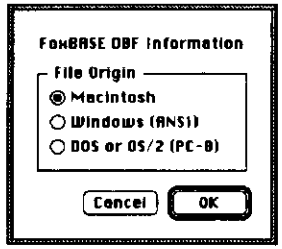
First, load the customer database.

To load the San Francisco customers database:

1. Choose Open from the File menu. The Open Table dialog is displayed.
2. Click the File Format menu.
3. Click FoxBASE DBF as the file format.

The File Name list box should show only SanFran_Customers.

4. Double-click SanFran_Customers. MapInfo prompts you for conversion instructions.



5. Click the Windows (ANSI) option and click OK.

The file is open. Before you can display this data on a map, you must first assign X and Y coordinates to its records. You assign X and Y coordinates by matching addresses in the SanFran_Customers database with addresses in a street map table. Creating that match is called geocoding.

1. Click the Table menu to see if you are ready to geocode: the Geocode entry is still grayed out indicating this choice is not yet available.

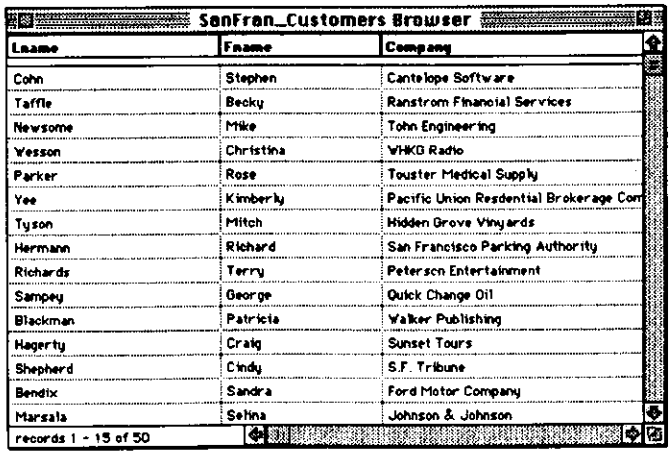
2. Choose Open from the File menu and click on SanFran_Streets.

There must be at least one map available (open) to geocode a table, i.e., to establish mappable locations.

You may have to scroll the File Name box to see SanFran_Streets.

You now have a map to geocode the data to. Next, you want to browse the table to geocode.

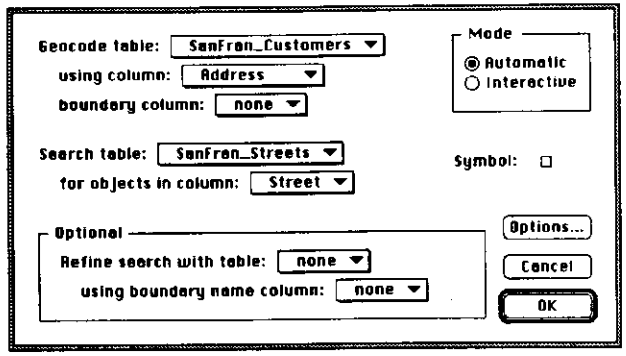
3. Select Browse from the Window menu. Choose SanFran_Customers from the menu. Click OK.



Lname	Fname	Company
Cohn	Stephen	Cantelope Software
Taffle	Becky	Ranstrom Financial Services
Newsome	Mike	Tohn Engineering
Wesson	Christina	WHKG Radio
Parker	Rose	Touster Medical Supply
Yee	Kimberly	Pacific Union Residential Brokerage Com
Tyson	Mitch	Hidden Grove Vinyards
Hermann	Richard	San Francisco Parking Authority
Richards	Terry	Peterson Entertainment
Sampey	George	Quick Change Oil
Blackman	Patricia	Walker Publishing
Hagerty	Craig	Sunset Tours
Shepherd	Cindy	S.F. Tribune
Bendix	Sandra	Ford Motor Company
Marsala	Selina	Johnson & Johnson

Look at the Geocode entry in the Table menu. The Geocode entry is now available, so you are ready to begin geocoding:

1. Choose Geocode from the Table menu. MapInfo displays the Geocode dialog box.



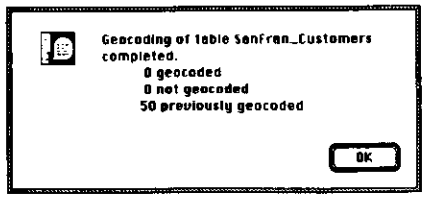
2. Select Address from the using column menu.

3. Click OK to start the process. A second Geocode dialog displays allowing you to watch the geocoding process. Each database address is selected, and if possible, matched against streets in SanFran_Streets.

4. When automatic geocoding is finished, a summary of the results is displayed. Click OK.

Automatic geocoding is the default, but you can choose interactive geocoding.

In automatic geocoding, MapInfo geocodes each record where a match is found between *Address* and *Street*. There are no pauses for unmatched records. Unmatched records are handled later, interactively.



5. Again, choose Geocode from the Table menu, and click Interactive in the Mode box. Click OK.

MapInfo stops at the first non-matching Address and shows you a list of alternative addresses or street number ranges, depending on the record.

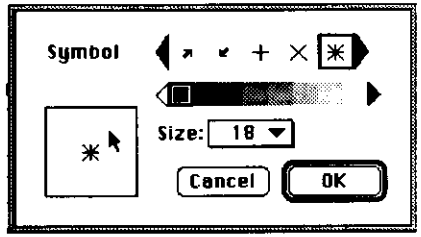
6. Click OK to accept the name and continue interactive geocoding. The next Address not yet matched is displayed.
7. Continue to click OK for addresses you can recognize as correct matches, despite variations in spelling, completeness, or the position of Suite numbers.

   Typical differences are omitting St or using St instead of Street or using Ave instead of Avenue.
8. When you have successfully identified every address that can be matched to a Street, there will be 48 geocoded records and two that remain unmatchable.

   If the two unmatchable records can be found on the map, you may be able to geocode them later.
9. Click the title bar of the SanFran_Streets Mapper.
10. Choose Layer Control from the Map menu.
11. Click the Add button.
12. Select SanFran_Customers and click OK. Notice that the SanFran_Customers layer is placed on top just below the Cosmetic Layer.
13. Click the title bar of the SanFran_Customers Browser and choose Select All from the Analyze menu.

    You can press Esc or Command-Period at any time to stop the redraw of the map and save time.
14. Choose Find Selection from the Analyze menu. The map is redrawn to show the area containing the selected data.
15. Click the title bar of the SanFran_Streets Mapper.
16. Choose Layer Control from the Map menu and select the SanFran_Customers layer.
17. Click Settings. The Layer Settings dialog box displays.
18. In the Display Mode area, click the box with the plus sign to display the Pick Symbol dialog box.

    This dialog allows you to choose a symbol, size, and color to help your customer locations stand out on a street map.



19. Click on the filled-in star and the red box. Change the size from 12 to 18, then click OK three times.
20. Press Esc or Command-Period to stop the redraw and click anywhere on the map. Then choose Redraw Window from the Window menu.

    This process removes the selection rectangles. The red stars denote customer locations.

Geocode the last 2 customer addresses that wouldn't match. Use a different geographic reference.

To geocode via ZIP Code:

1. Choose Open from the File menu and double-click on SanFran_Zips The ZIP Code map displays.
2. Choose Geocode from the Analyze menu, select SanFran_Customers for the table, and zip_code for the using column.
3. Click OK.
4. Click OK again.

MapInfo does the automatic geocoding, ignoring records already geocoded, and then displays the final results in a dialog.

The records in the SanFran_Customers table now have links from the Address column to the specific streets named in the Street column of SanFran_Streets. These links allow you to see where these customers are on the map of San Francisco. Now, when you do selections among the customer records, based on the contents of other columns, the results can be displayed geographically on your map.

Lesson Five describes the layout process where you layout a page to be printed. You can use the Layout Window to set up the position of your Mappers, Browsers, Graphers, legends, and other objects.

For now, feel free to experiment with the operations you learned in Lesson 4.

Saving Your Work

You can save your work by first saving any changed tables. However, you do not have to save your geocoded table. MapInfo automatically saves your X and Y coordinates. You merely have to close the SanFran_Customers table.

To save you table setup to a workspace:

1. Choose Save Workspace As from the File menu. The list of workspaces already saved in the directory containing MapInfo is displayed.
2. Type the path name for your personal directory and the workspace name, lesson_4.wor. Click OK.

If you wish to take a breather, this is a good time. Choose Close All or Quit from the File menu. When you are ready to continue, please go to Lesson 5.

Lesson 5 Using The Layout Window

Summary

In this lesson, you will learn how to:

- Create layouts to display and print maps, Browsers, and text
- Position a Mapper and a Browser in the Layout Window
- Add text to the Layout Window
- Print your work to see the results on paper

Approximate time to finish lesson: 30 minutes

Introduction to the Layout Window

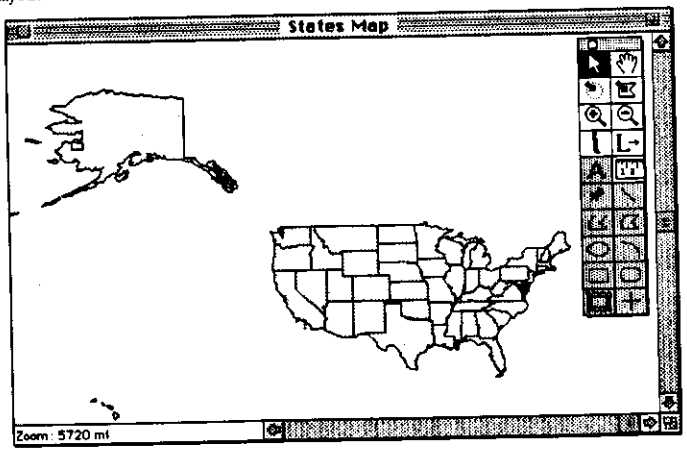
The Layout Window is an area where windows are organized for printing. The elements on each page can be maps, Browsers, graphs, legends, text, or other graphic objects. Windows (Mappers, Browsers, and Graphers) are represented by rectangular frames that you can size and position. The border and fill of each frame can be modified. You can also draw lines, figures, or choose text that enhance the clarity or aesthetic quality of your output.

This lesson shows you how to use the Layout Window to set up and print a layout.

Opening Your Map

Perform the following steps to open the states table and display it as a map:

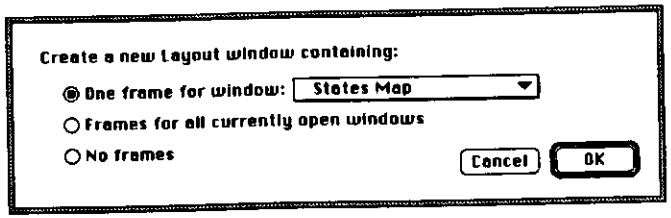
1. Choose Open from the File menu. The Open Table dialog is displayed.
2. Select the states file from the File list box. You may first need to double-click on the Data folder.
3. Click Mapper and browser if they are not checked in Windows to Use, at the bottom of the Open dialog box.
4. Click Open. The map of the United States displays.



5. Use the Zoom and Grabber tools to make your map look like the map above.

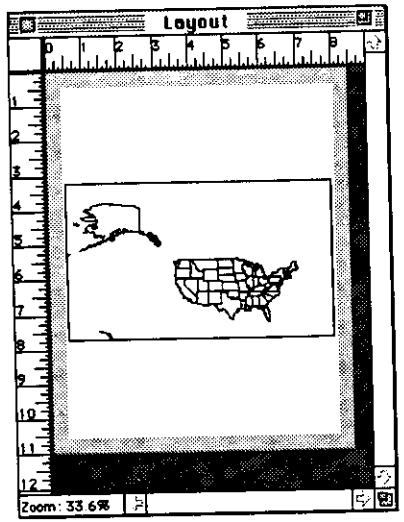
To set up your first Layout Window:

1. Click the Window menu.
2. Choose Layout from the Window menu. A dialog displays your choices for contents of the Layout Window.

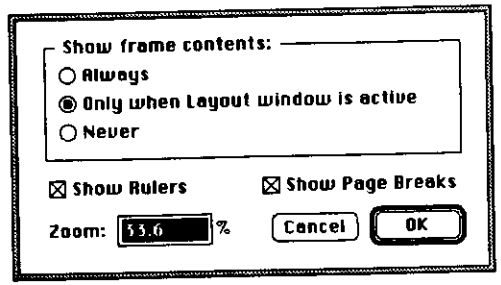


Choose one frame for window: States Map. A frame is a display of a Mapper, Grapher, Browser, or legend in the Layout Window. When you select this option, the states map is displayed in a box in the Layout Window.

3. Click OK. A layout window displays. The States frame is placed in the middle of the window.



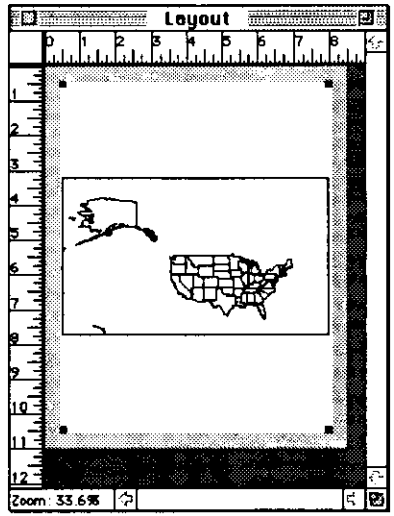
4. Choose Display Options from the Layout menu. The following dialog is displayed:



The default choice saves time by restricting the redraw of the Layout window contents. The Always option helps when you are making aesthetic decisions. The Never option is best while making positioning decisions.

5. Click Always and then OK. The Layout window is displayed again.
6. Choose the Select tool from the Tool palette and click the states frame. The handles for that frame are displayed.
7. Click and drag the bottom right handle straight up.

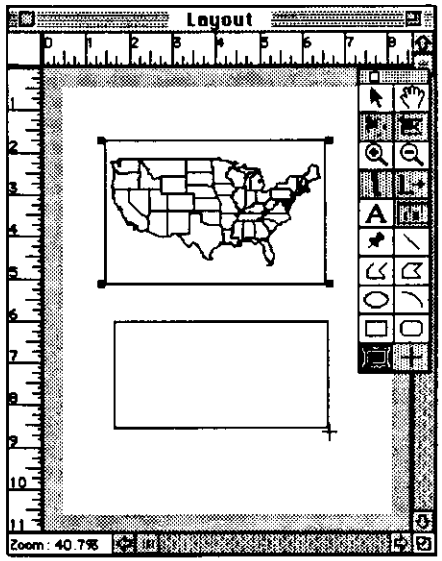
Your Layout Window should now look like this:



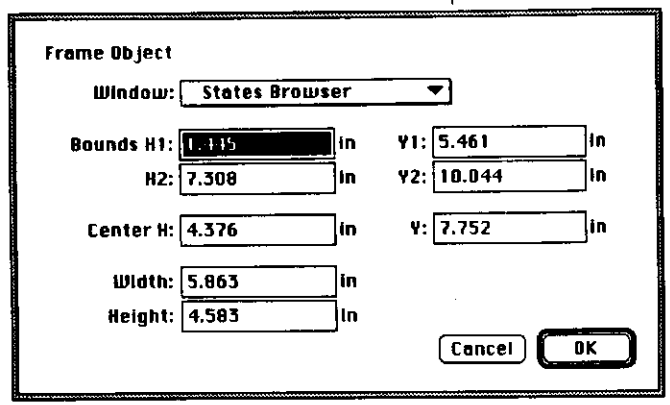
Now that you have a map in your Layout Window, open a Browser and add that to the Layout Window.

To add the Browser to the Layout Window, choose the Frame tool from the Tool Palette.

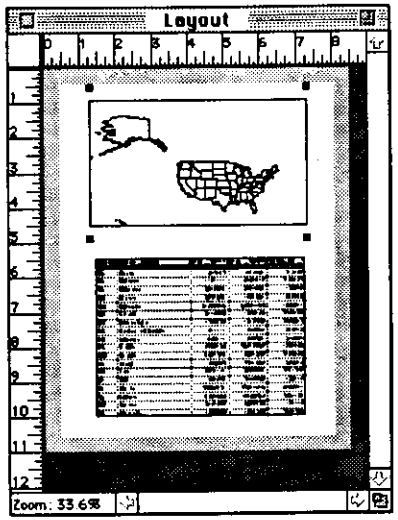
1. Make the Layout Window the active window by clicking on its title bar.
2. Choose the Frame tool (picture frame icon) from the Tool palette.
3. Move the cursor over the Layout Window. Click on an empty section of the Window, hold down the mouse button, and drag the cursor diagonally, creating a dotted box.



4. Release the mouse button. MapInfo displays the Frame Object dialog. Make sure that the states Browser is listed in the Window menu. Click OK.



5. MapInfo places the Browser in the frame.

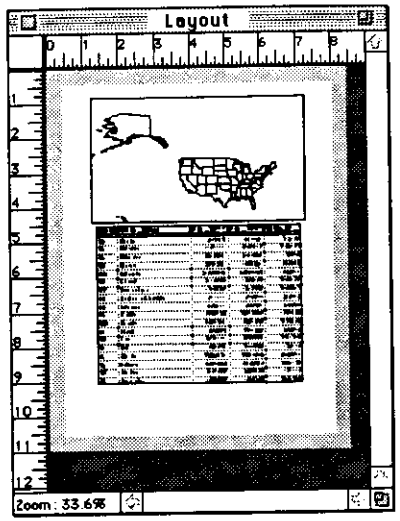


Next, zoom in on the Layout page and add text. Maximize the Layout window by clicking in its zoom box (upper right corner).

1. Choose the Zoom-in tool from the Tool Palette and draw a box around the border of the 8.5" by 11" layout page.

The Zoom-in and Zoom-out tools also work in the Layout Window. While you cannot change the zoom level of maps from the Layout Window, you can zoom in on different areas of the Layout Window.

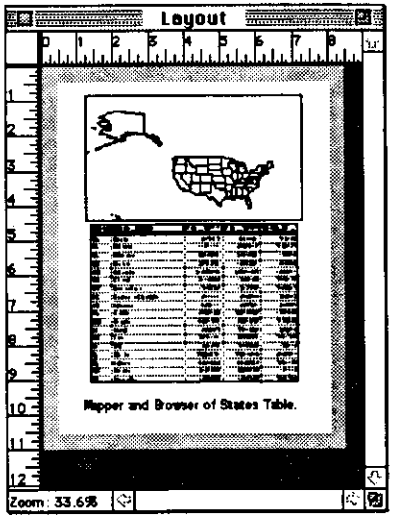
Your layout should now look like this:



2. Choose Text Style from the Style menu. Move the cursor down the list of point sizes and select 36 point.
3. Choose the Text tool (upper case A icon) from the Tool palette. Move the cursor over the Layout Window. The cursor becomes an I-beam.
4. Click the mouse under the Browser and type the title "Mapper and Browser of States Table".

Point size is the size of text.

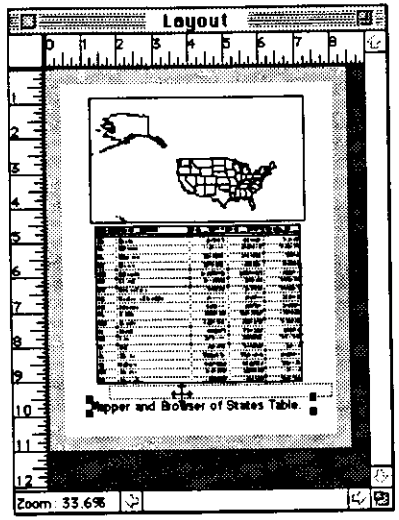
Your Layout Window should now look like this:



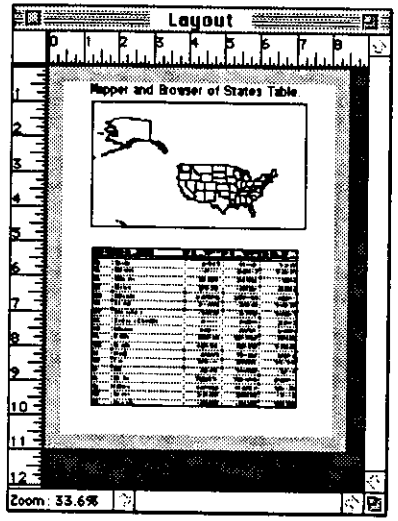
However, let's say you want to put the title above the Mapper. In the Layout Window, it is easy to move text, objects, or frames.

1. Choose the Select tool from the Tool palette.
2. Click anywhere on the text you have just typed, hold down the mouse button and drag the text to the top of the Layout Window.

You can move any object in the Layout Window (including frames) by clicking on it with the Select tool, holding down the mouse button, and dragging the object.



3. Release the mouse button and MapInfo places the text at the top of the Layout Window.



To output this Layout Window to a printer or other output device:

1. Choose Print from the File menu. Make sure that your output is directed to the file or output device of your choice.

2. Click Print.

If your output is not directed to the correct output device, you can change these settings with the Chooser.

Congratulations! Now that you have completed this tutorial, you have begun to use the MapInfo commands to do basic analysis and visualization of data. Next, read the MapInfo *User's Guide* and develop your knowledge of desktop mapping concepts. Then, use the MapInfo software in conjunction with the MapInfo *Reference Manual* or on-line help.

Appendix 1: Using a Digitizer with MapInfo for Macintosh

A digitizing tablet, or digitizer, is a device which lets you trace over paper maps to create computerized drawings. If you have a digitizer, you can use it with MapInfo for Macintosh after performing the steps described below.

MapInfo lets you switch between two different modes: *mouse mode* and *digitizing mode*. Generally, you need to be in digitizing mode when you are digitizing paper maps off of the tablet, and you need to be in mouse mode at other times. While running MapInfo, you can switch between these two modes by pressing the letter "d."

While you are in digitizing mode, you cannot use the digitizing puck to pull down menus, select tools, or perform any other functions that require the mouse. Nor can you use the hot keys to perform these functions. You must switch out of digitizing mode before you can perform these functions.

The *Snap to nodes* feature (under the Preferences option in the Edit menu) does work while digitizing. However, the snap tolerance is a pixel value which is based on the current zoom level of the Mapper. You can turn off *Snap to nodes* by setting the tolerance to 0.

If you change the zoom level of your map, or scroll in the Mapper after you have selected your digitizer points and then switch into digitizing mode, your cursor may disappear from the screen. This is because the location in the map corresponding to the puck is no longer visible in the Mapper.

Auto polygon closure (based on pixel snap tolerance) does not work in digitizing. You must hit button 2 to close a polygon.

Appendix 2: Sample Data

MapInfo comes with a diverse assortment of sample data files, described on the following pages.

You must install the sample data files before trying to view them through MapInfo. The installation procedure is described at the start of this manual. Note that the set of sample data diskettes is separate from the set of MapInfo software diskettes; thus, you must perform one Install operation to install the MapInfo software, and then perform a separate Install operation to install sample data.

MapInfo Corporation sells a wide variety of data products. If MapInfo's sample tables do not meet all of your needs, you may wish to purchase additional data products.

MapInfo's sample data set is split into two subdirectories: Data and Samples. The Data folder contains detailed sample data, ranging from a global scale (e.g. the World table) to a local scale (various tables set in San Francisco). The Samples folder contains data which is less detailed and more stylized, primarily for output purposes.

Global Sample Data

WORLD table

The World table contains country boundaries for the world, as well as demographic data about each country. Table size: 193 kilobytes.

Field Name	Description
Country	Country name
Capital	Name of capital
Arable_Pct	Percent of land arable
Population	Total population
Pop_Grw_Rt	Population growth rate (percent)
Literacy	Literacy rate (percent)
Inflat_Rate	Inflation rate (percent)
Unempl_Rate	Unemployment rate (percent)
Indstr_Grwth	Industrial growth rate (percent)
Continent	Continent name

WORLD_CAPITALS table

The World_Capitals table contains points representing the capitals of countries around the world. Table size: 54 kilobytes.

Field Name	Description
Capital	Capital name
Country	Country Name
Cap_Pop	Population of Capital

GRID_05 table

The Grid_05 table contains longitude and latitude lines for the entire world, at 5 degree increments. Table size: 67 kilobytes.

Field Name	Description
Name	Line name
Degrees	Longitude or latitude measurement
LatOrLong	"Lat" or "Long" to indicate line type

GRID_10 table

The Grid_10 table contains longitude and latitude lines for the entire world, at 10 degree increments. The field descriptions are the same as for the Grid_05 table.
Table size: 37 kilobytes.

GRID_15 table

The Grid_15 table contains longitude and latitude lines for the entire world, at 15 degree increments. The field descriptions are the same as for the Grid_05 table.
Table size: 25 kilobytes.

GRID_30 table

The Grid_30 table contains longitude and latitude lines for the entire world, at 30 degree increments. The field descriptions are the same as for the Grid_05 table.
Table size: 17 kilobytes

OCEAN table

The Ocean table contains a large object representing the ocean; this is used for creating colored map backgrounds. Table size: 4 kilobytes.

North American Sample Data

Several of MapInfo's sample tables focus specifically on Canada and the United States. The U.S.-oriented sample tables include four demographic tables from MapInfo's **StatInfo** product line. The sample StatInfo data presents demographic information summarized on a state-by-state basis; note that MapInfo also sells StatInfo demographic data on several other levels (e.g. summarized on a county-by-county basis).

CANADA table

The Canada table contains Province-level boundaries for Canada.
Table size: 95 kilobytes.

Field Name	Description
Province	Province name
Pop_1981	Province population as of 1981
Pop_1991	Province population as of 1991
Capital	Name of the province's capital

STATES table

The States table contains state-level boundaries for the United States.
Table size: 52 kilobytes.

Field Name	Description
State	2-letter state abbreviation
State_Name	Full state name
Pop_1980	State population as of 1980
Pop_1990	State population as of 1990
Num_Hh_80	Number of households as of 1980
Num_Hh_90	Number of households as of 1990
Med_Inc_80	Median household income as of 1980
BPI_1990	Buying Power Index as of 1990
Sales_1990	Estimated total retail sales as of 1990 (in thousands of dollars)
Total_Area	Total area in square miles

STATE_CAPITALS table

The State_Capitals table contains state capitals for the United States.
Table size: 9 kilobytes.

Field Name	Description
Capital	Capital name
State	2-letter state abbreviation
Pop_1990	Capital's population as of 1990
Num_HU_90	Number of housing units in the capital as of 1990

CITY_125 table

The City_125 table contains points representing the 125 most populous cities in the United States. Table size: 16 kilobytes.

Field Name	Description
City	City name
State	2-letter state abbreviation
Pop_1990	City population as of 1990
Num_HU_90	Number of housing units in the city as of 1990

US_ZIPS table

The US_Zips table contains a point object for each 5-digit ZIP code in the United States; each point represents the centroid of a ZIP code region. (MapInfo also sells tables in which each ZIP code is represented as a boundary.)
Table size: 1,880 kilobytes.

Field Name	Description
ZIP_Code	5-character ZIP code

StatInfo Statistical Sample Data

The data set includes samples from MapInfo's StatInfo line of data products. Samples of the following products have been included:

- StatInfo Population (USSTPOP)
- StatInfo Retail (USSTRET)
- StatInfo Business (USSTBUS)
- StatInfo Income (USSTINC)

StatInfo data covers the entire United States. Note that this information is supplied as point data; that is, each record is represented as a point, at the center (technically, the centroid) of each state, rather than as a region. To display this data graphically you will probably want to combine it with a map of the States table (another sample table, described above) which contains actual state boundaries.

You can join the StatInfo data to the States table by performing SQL Select, Shade by Value, or Join. If you use SQL Select you will get a new table which contains state boundaries as graphic objects and the statistical information you select. In issuing this SQL Select command you want the command to contain at least the following: (Note: This example assumes you are getting the statistical information from StatInfo Retail; to use another StatInfo table instead, refer to that table instead of USSTRET.)

- From tables: STATES, USSTRET
- Where: STATES.NAME = USSTRET.STATE

This will ensure that the proper records are linked up in the new table. Once you have created a table in this way you can then save it as a permanent table and/or display it on a map.

If you use Shade by Value to make the combination you will get a map shaded by some selected statistical value. In the Shade by Value dialog you need to

- Shade Layer: STATES
- Get Value from Table: USSTRET

You will have to specify the column of expression you want to use in calculating the thematic value. For more information on performing Shade by Value, see the *MapInfo Reference*.

The sample StatInfo data included with MapInfo is presented state by state; MapInfo Corporation also sells StatInfo data summarized at other levels (e.g. by county). You can purchase StatInfo data for the whole United States, or for an individual state. StatInfo data is available at the following levels of detail:

- ZIP Code
- County
- ADI: Area of Dominant Influence
- DMA: Designated Market Area
- MSA: Metropolitan Statistical Area, as defined by the U.S. Census Bureau.

For more information about these and other available data products, contact MapInfo Sales.

USSTBUS table

The USSTBUS (StatInfo business) table profiles the manufacturing and employment characteristics of an area. Table size: 12 kilobytes.

Field Name	Description
State	2-letter state abbreviation
State_Name	Full state name
Num_Est_89	Number of commercial and industrial establishments, as of 1989
Num_Emp_89	Number of employees at commercial and industrial establishments, as of 1989
Man_Emp_89	Total employment in manufacturing, as of 1989
WC_Emp_89	Number of white collar employees, as of 1989
BC_Emp_89	Number of blue collar employees, as of 1989
Man_BPI_89	Manufacturing Buying Power Index, as of 1989

Additional Notes:

Buying Power Index - A weighted index incorporating data from important 2-digit SIC groupings into a measurement of a market's "ability to buy" from a commercial/industrial standpoint.

Manufacturing BPI = [(Employment SIC 23 % US) * (.2)] +
[(Employment SIC 38 % US) * (.4)] +
[(Employment SIC 20 % US) * (.4)]

USSTINC table

The USSTINC (StatInfo Income) database profiles the income of an area. This includes the 1990 Buying Power Index (BPI), a percentage which represents the share of consumers' overall buying power in a specific market.
Table size: 16 kilobytes

Field Name	Description
State	2-letter state abbreviation
State_Name	Full state name
Tot_Inc_80	Total income as of 1980*
EBI_1990	Effective Buying Income, 1990*
EBI_Hh_90	Average household Effective Buying Income, 1990*
Med_Hh_80	Median household income, 1980*
EBI_Med_90	Median household Effective Buying Income, 1990*
BPI_90	Buying Power Index, 1990
Hh_LT_10	Number of households with earnings less than $10,000
Hh_10_15	Number of households with earnings between $10,000 and $14,999
Hh_15_20	Number of households with earnings between $15,000 and $19,999
Hh_20_25	Number of households with earnings between $20,000 and $24,999
Hh_25_35	Number of households with earnings between $25,000 and $34,999
Hh_35_50	Number of households with earnings between $35,000 and $49,999
Hh_50_75	Number of households with earnings between $50,000 and $74,999
Hh_75Plus	Number of households with earnings of $75,000 or more

* numbers in thousands of dollars

Additional Notes:

Effective Buying Income (EBI) - Personal income less personal tax and nontax payments. This number is often referred to as disposable or "after-tax" income.

USSTPOP table

USSTPOP (StatInfo Population) is a database of demographic information, containing 1990, 1991 and 1995 estimated populations and the number of households in these years. Additionally, the 1990 population estimate is broken down by age group, gender, and ethnicity. Table size: 20 kilobytes.

Field Name	Description
State	2-letter state abbreviation
State_Name	Full state name
Pop_1990	Estimated population as of 1990
Pop_1991	Estimated population as of 1991
Pop_1995	Projected population as of 1995
Pop_Hh_90	Number of households as of 1990
Pop_Hh_91	Number of households as of 1991
Pop_Hh_95	Projected number of households as of 1995
Pop_0_5	Estimated 0 - 5 year olds, as of 1990
Pop_6_11	Estimated 6 - 11 year olds, as of 1990
Pop_12_17	Estimated 12 - 17 year olds, as of 1990
Pop_18_24	Estimated 18 - 24 year olds, as of 1990
Pop_25_34	Estimated 25 - 34 year olds, as of 1990
Pop_35_44	Estimated 35 - 44 year olds, as of 1990
Pop_45_54	Estimated 45 - 54 year olds, as of 1990
Pop_55_64	Estimated 55 - 64 year olds, as of 1990
Pop_65Plus	Estimated 65 + year olds, as of 1990
Pop_Male	Number of males as of 1990
Pop_Female	Number of females as of 1990
Pop_Black	Black population as of 1990
Pop_Hispan	Hispanic population as of 1990

USSTRET table

The USSTRET (StatInfo Retail) database is comprised of statistics which are indications of the retail activity in an area. Table size: 22 kilobytes.

Field Name	Description
State	2-letter state abbreviation
State_Name	Full state name
BPI_1990	Buying Power Index, 1990
Sales_1990	Retail sales, 1990
Sales_Hh90	Retail sales per household, 1990
Food_Sales	Sales for food stores, 1990
Eat_Sales	Sales for eating and drinking establishments, 1990
Gnmr_Sales	Sales for general merchandise, 1990
Aprl_Sales	Apparel and accessory store sales, 1990
Furn_Sales	Furnishing and appliance store sales, 1990
Auto_Sales	Automotive dealer sales, 1990
Gas_Sales	Gasoline service station sales, 1990
Buil_Sales	Building materials and hardware sales, 1990
Drug_Sales	Drug store sales, 1990
Othr_Sales	All other store sales, 1990
Food_Store	Number of food stores, 1990
Eat_Store	Number of eating and drinking establishments, 1990
Gnmr_Store	Number of general merchandise stores, 1990
Aprl_Store	Number of apparel stores, 1990
Furn_Store	Number of furniture stores, 1990
Auto_Store	Number of automobile dealers, 1990
Gas_Store	Number of gasoline service stations, 1990
Buil_Store	Number of building materials/hardware stores, 1990
Drug_Store	Number of drug stores, 1990
Othr_Store	Number of other stores, 1990

* sales in thousands of dollars

Additional Notes:

Buying Power Index (BPI) - A weighted index that converts the three basic elements of population (the demographic factor), Effective Buying Income (the economic factor), and retail sales (the distribution factor) into a measurement of a market's "ability to buy", expressing it as a percentage of the national total (US = 100.00000). The BPI is calculated by first producing a ratio of local population, income, and retail sales to the comparable U.S. totals, then assigning a weight of .5 to an area's income, .3 to retail sales, and .2 to population. These weights are then multiplied by the appropriate ratios and the resulting figures added together to produce BPI for a state, metro, county, newspaper market, or television market. The BPI is an important measure used to estimate potential for mass-market items sold at popular prices.

Tutorial Sample Data

Some of the sample tables are used in the Tutorial which appears earlier in this manual. The Tutorial is located in the city of San Francisco; accordingly, most of the Tutorial tables have names starting with SF.

SANFRAN_CUSTOMERS database
SANFRAN_CUSTOMERS_DEMO table

SanFran_Customers.DBF is a dBASE-format file containing fictitious customer data in the San Francisco area. SanFran_Customers_Demo is a MapInfo table showing what the SanFran_Customers database looks like when geocoded.

Field Name	Description
Lname	Customer's last name
Fname	Customer's first name
Company	Company name
Address	Company street address
City	City name
State	2-letter state abbreviation
ZIP_Code	ZIP code
Telephone	Customer telephone number
Sales	Units sold
No_Employ	Number of employees
Sales_Rep	Sales representative's last name

SANFRAN_STREETS table

SanFran_Streets is a sample StreetInfo table, containing a street map of San Francisco. Note that the table San_Fran_Streets actually consists of two other tables, SF_STRT1 and SF_STRT2. Total table size: 1,600 kilobytes.

Field Name	Description
Street	Street name
FromLeft	Address number on the left side of the street, at the street segment's starting point
ToLeft	Address number on the left side of the street, at the street segment's ending point
FromRight	Address number on the right side of the street, at the street segment's starting point
ToRight	Address number on the right side of the street, at the street segment's ending point
Primary	True or false (T/F), indicating if the record is a primary road

SF_STRT1 table

This table contains the graphic objects representing the streets in the SanFran_Streets table. If you want to add or delete streets or street segments in SanFran_Streets, you must work with SF_STRT1. See the *MapInfo User's Guide* for details.

Field Name	Description
FromLeft	Address number on the left side of the street, at the street segment's starting point
ToLeft	Address number on the left side of the street, at the street segment's ending point
FromRight	Address number on the right side of the street, at the street segment's starting point
ToRight	Address number on the right side of the street, at the street segment's ending point
Primary	True or false (T/F), indicating if the record is a primary road
MI_refnum	MapInfo reference number for a segment. This number is used to match the segment with its street name in SF_STRT2.

SF_STRT2 table

This table contains the street names used in the SanFran_Streets table.

Field Name	Description
Street	Street name
MI_refnum	MapInfo reference number for a segment. This number is used to match the segment with its street name in SF_STRT1.

SANFRAN_ZIPS table

The SanFran_Zips table contains San Francisco ZIP code boundaries.
Table size: 15 kilobytes.

Field Name	Description
ZIP_Code	5-digit ZIP Code
Pop_1980	Population as of 1980
Pop_1991	Population as of 1991
Pop_Hh_80	Number of households as of 1980
Pop_Hh_91	Number of households as of 1991
Med_Hh_80	Median household income as of 1980
Num_Est_89	Number of commercial and industrial establishments as of 1989
Num_Emp_89	Number of employees in commercial and industrial establishments as of 1989
Man_BPI_89	Manufacturing Buying Power Index as of 1989 (see BPI definition above, under StatInfo)
BPI_1990	Buying Power Index 1990
Sales_1990	Total sales 1990
Sales_Hh90	Sales per household 1990

SANFRAN_BAY table

The SanFran_Bay table contains a boundary of the San Francisco bay area.
Table size: 53 kilobytes.

SANFRAN_WATER table

The SanFran_Water table contains San Francisco water features.
Table size: 35 kilobytes.

Field Name	Description
Name	Name of water feature
cfcc	Census Feature Class Code

SF_WATE1 table

The SF_WATE1 table contains graphic objects representing the water features in the SanFran_Water table.

Field Name	Description
cfcc	Census Feature Class Code
MI_refnum	MapInfo reference number. This number is used to match the object with its name in SF_WATE2.

SF_WATE2 table

The SF_WATE2 table contains the names of the water features in the SanFran_Water table.

Field Name	Description
Name	Name of water feature
MI_refnum	MapInfo reference number. This number is used to match the name with the object in SF_WATE1.

SANFRAN_OTHER table

The SanFran_Other table contains other San Francisco map features (railroads, parks, etc.).
Table size: 23 kilobytes.

Field Name	Description
Name	Name of feature
cfcc	Census Feature Class Code

SF_OTHE1 table

The SF_OTHE1 table contains graphic objects representing the features in the SanFran_Other table.

Field Name	Description
cfcc	Census Feature Class Code
MI_refnum	MapInfo reference number. This number is used to match the object with its name in SF_OTHE2.

SF_OTHE2 table

The SF_OTHE2 table contains the names of the features in the SanFran_Other table.

Field Name	Description
Name	Name of feature
MI_refnum	MapInfo reference number. This number is used to match the name to the object in SF_OTHE1.

Other Sample Data

MapInfo's sample data set includes several tables created specifically for the purpose of creating presentation-quality output. These tables are located in a Samples folder.

Some of the Samples tables are less accurate and more stylized than the other MapInfo data files. For example, the State_Thin table presents Alaska and Hawaii in a stylized manner, located to the south-west of the continental United States. Accordingly, you should use the Samples tables for display and output purposes only, not for detailed geographic analysis.

ARROWS table

The Arrows table contains decorative arrow-shaped objects. You can use these arrows in your own maps by copying and pasting. Table size: 61 kilobytes.

US_OUTLINE table

The US_Outline table contains an outline of the United States.
Table size: 4 kilobytes.

STATE_CENTERS table

The State_Centers table contains state centroids for the United States.
Table size: 4 kilobytes.

Field Name	Description
State	2-letter state abbreviation

STATE_OUTLINES table

The State_Outlines table contains state outlines in color.
Table size: 23 kilobytes.

Field Name	Description
State	2-letter state abbreviation

STATE_THIN table

The State_Thin table contains a simplified, stylized set of U.S. state boundaries.
Table size: 30 kilobytes.

Field Name	Description
State	2-letter state abbreviation
State_Name	Full state name
Pop_1980	State population as of 1980
Pop_1990	State population as of 1990
Num_Hh_80	Number of households as of 1980
Num_Hh_90	Number of households as of 1990
Med_Inc_80	Median household income as of 1980
BPI_1990	Buying Power Index as of 1990
Sales_1990	Estimated total retail sales as of 1990 (in thousands of dollars)
Total_Area	Total area in square miles

US_SHADOW table

The US_Shadow table contains region objects which create a shadow effect when used on United States maps. Table size: 4 kilobytes.

Sample Workspaces

In conjunction with the sample tables listed above, MapInfo comes with several sample workspace files, which show the sample tables in action. To use one of the sample workspace files, run MapInfo and pick Add Workspace from the File menu. MapInfo displays a dialog, prompting you to pick which workspace you want to use.

DEMO workspace

The Demo workspace displays a general-purpose map, demonstrating MapInfo's multi-layer mapping capabilities.

SANFRAN workspace

The SanFran workspace displays a map of San Francisco.

STATES workspace

The States workspace displays a map of the United States.

WORLD PROJECTION workspace

The World Projection workspace shows a map of the world, in the Robinson map projection.

Appendix 3: MapInfo File Names and Types

Installing MapInfo for Macintosh places the following files on your disk:

MapInfo Abbreviations: The set of abbreviations MapInfo uses when locating addresses in street files

MapInfo: The MapInfo program file

MapInfo Symbols: The symbols which MapInfo uses to display point objects on maps

MapInfo Help: The MapInfo on-line help file

MapInfo Pens: MapInfo's Pen (line) style definitions

MapInfo Projections: MapInfo's map projection definitions

Mapbasic Applications: a folder containing sample applications for use with MapInfo

filename.MBx: MapBasic executable programs

MapInfo

Version 2.0

for Macintosh

Release Notes

MapInfo Corporation
Troy, New York

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- Fax: (518) 274-6066
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- Technical Support Hotline: (800) 552-2511
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Notes About MapInfo 2.0

New MapInfo Icons

MapInfo 2.0 includes new icons. If you have previously installed MapInfo version 1.x on your hard disk, you need to rebuild your desktop to see the new icons. To rebuild the desktop, hold down the Command and Option keys while restarting your Macintosh. If your computer has a large hard drive, this process will take some time and you will lose any comments attached to your files.

File names

MapInfo for Macintosh file names can be up to 31 characters long and can contain spaces and multiple periods. Some MapInfo dialog boxes truncate the names longer than 19 characters and replace spaces with underscore characters when displaying the tablename. Filenames can also contain multiple periods, but MapInfo truncates filenames after the first period. For instance, opening the file Cust.Orders.July causes MapInfo to alias the table as Cust.

PICT File Import

MapInfo for Macintosh can import PICT files that contain only vector data. Some programs that save files in the PICT format include bitmap data in the files. MapInfo ignores the bitmap data when it imports these files. An example of a program that includes bitmap information in PICT files is SuperPaint.

Symantec Anti-Virus

MapInfo will not load or run correctly if a version of Symantec Anti Virus version prior to 3.0.9 is loaded with the T4 virus definition. Loading the T4 definition causes SAM to check each Macintosh code resource that is loaded for the T4 virus. A bug in SAM versions prior to 3.0.9 causes this process to prevent MapInfo from loading. Contact Symantec for more information.

You can overcome this by unloading the T4 virus definition (if it was user installed), or using this definition only with SAM version 3.0.9 or later.

Apple Events and MapInfo

MapInfo for Macintosh provides support for Apple Events on Macintosh computers running System 7. You can send Apple Events directly to MapInfo, to an active MapBasic application, or to any application that supports the **DoScript** event. See the Apple Events example Stack included with MapBasic, or the *MapBasic Release Notes* for more information on MapInfo's Apple Event support.

One of the most important features of Macintosh System 7 is its support for inter-application communications known as Apple Events. Apple Events are a protocol that allow one Apple Event aware application to send commands and data to another Apple Event aware application. MapInfo is Apple Event aware and can act upon commands sent by other applications.

In the terminology of inter-application communications, MapInfo takes the role of a server. This means that MapInfo can receive commands and data but cannot send them, although MapBasic programs can send Apple Events. The client application initiates the Apple Event conversation and commands the server application. MapInfo also supports the Apple Event Object Model (AEOM).

This AEOM allows server applications to store object type definitions and the events they support in a resource known as the 'aete' resource. MapInfo contains an 'aete' resource. Programs capable of using it can automatically determine which Apple Events MapInfo supports. In some cases, these applications use this information to build scripts specifically for communicating with MapInfo. For applications that don't know how to take advantage of the 'aete' resource, you need to determine how MapInfo's events and objects are referred to by that client.

MapInfo can receive the following events:

- Open Application
- Open Document
- Print Document
- Quit Application
- Do Script

Open Application

This event is sent from the Finder when MapInfo is launched and is normally not used in inter-application communications. See the discussion on launching MapInfo for more information.

Open Document

This event tells MapInfo to open the named document. Documents can be tables, workspaces, or MapBasic applications.

Print Document

Because of the design of MapInfo, the Print Document command has no practical use. MapInfo does not print documents - it prints windows. If you send a Print Document command to MapInfo, it responds with a dialog telling you that MapInfo can only print windows. To print from MapInfo using Apple Events, send Do Script events to open the file, display a window, and print the document.

Quit Application

Instructs MapInfo to close any open files and quit.

Do Script

This event tells MapInfo to execute a command. For instance, a HyperCard stack could send the following command to MapInfo:

```
Send "Run Menu Command 104"  to program "MapInfo"
```

Using Do Script, you can send any commands that can be run from the MapBasic window. Note that HyperCard 2.1 is needed to execute the above example.

Apple Events and Networks

Apple Events can be sent across a network. This means that client applications such as Frontier or HyperCard running on one Macintosh can send commands to MapInfo running on another. A Macintosh running an application acting as a server (receiving Apple Events) must have program linking turned on, and program linking must be allowed for the user who sends the commands. This functionality requires that both Macintoshes be running System 7.

New Features for Version 2.0

New Geographic SQL Extensions

MapInfo's SQL ability has many geographic functions, including **Within**, **Contains**, and **Intersects**. You can also perform geographic related joins.

For more information on geographic SQL extensions, see the MapInfo *User's Guide* and *MapInfo Reference*.

Map Coordinate Systems And Projections

Projections allow you to reduce the distortion that occurs when objects from a spherical surface are displayed on a flat surface. You can now import, digitize, display, and output maps with over 100 different coordinate systems and projections. You can also create your own coordinate systems.

With the projection option, you can:

- Digitize a map which has an explicit projection.
- Import a DXF file which has an explicit coordinate system.
- Run a GIS application that requires the geographic precision of a given projection.
- Cosmetically alter your map for output.

For more information on projections, see the *MapInfo User's Guide* and *MapInfo Reference*.

Buffering

A buffer is a polygon that surrounds a line object, another polygon, symbol, or any other object in a Mapper. For example, you can create a buffer polygon that surrounds Interstate 90 by 440 yards on either side, or create a buffer polygon that surrounds the state of Oregon by 10 miles on all borders. Once you have created these polygons, you can search for objects that fall within them.

For more information on buffering, see the *MapInfo User's Guide* and *MapInfo Reference*.

Multi-point Digitizing

You can specify multiple control points when digitizing a map. This provides you with a higher degree of accuracy when digitizing and also allows you to digitize projected maps.

For more information about digitizing, see *MapInfo Reference* and *MapInfo Getting Started*.

Improved Geocoding

The Geocode Options dialog, accessible from the Geocode dialog, allows you to control the following details of the geocoding process:

- display an additional column when geocoding interactively
- skip records that have already failed to geocode
- make substitutions from an abbreviation file
- use the closest address number
- use matches found in different refining boundaries

You can also create a field into which MapInfo writes a result code for each record in your geocoded table. A result code is a number that indicates the steps that were taken to match the record or why the match failed. You can use these result codes to search for different types of geocoding problems.

For more information on improved geocoding features, see *MapInfo User's Guide* and *MapInfo Reference*.

Layout Window

Use a Layout window to arrange the contents of the windows (Mappers, Graphers, Browsers, and Legends) for preparing final output. You can add text and other graphic objects to your Layout Window. Aligning commands help you organize your layout objects. Once you've arranged your Layout, you can print it with a single Print command.

For more information on the Layout Window, see *MapInfo User's Guide* and *MapInfo Reference*.

New Line Types

Many new line types have been added, including line types that simulate double line streets and railroad tracks. In addition, you can create parallel street labels or rotate any text object.

For more information on improved line features, see *MapInfo Reference*.

Temporary Files

MapInfo 2.0 for Macintosh running under System 7 follows the System 7 convention of putting temporary files in a hidden folder. System 7 puts any files that it finds in this folder at startup time into the Trash where they can be retrieved if necessary. Running under System 6.0.x MapInfo 2.0 for Macintosh stores its temporary files in the System Folder.

Fonts in the Layout Window

Fonts and size of text objects in the Layout Window may not appear as they do on the printed page. This is because of the differences in the fonts that are available for display vs. the fonts used for printing, differences in character width, and differences in resolution between the screen and the printer. To find out the true size of a text object in the Layout Window, use the Select tool and click on the object. The edit handles indicate the object's true size.

This true size of text objects is used in calculations that rely on size (alignments and drop shadows, for example). Printed output is not affected by these screen differences.

Adding Objects to Query Tables

When mapping the results of a query (Select, SQL Select, selecting tools), you cannot draw objects to this layer, regardless of whether or not the layer is editable. This means that you cannot perform a Paste, Merge From Clipboard, or Buffer command to this layer.

Multiple Subqueries in SQL Select Statements

You cannot perform multiple non-nested subqueries in SQL Select statements. For example:

```
Select * from points where
        (obj within (select obj from tableA)) and
        (obj within (select object from tableB))
```

is not valid, since the subquery is not nested. However,

```
Select * from points where
        obj within (select obj from tableA where
                obj within (select obj from tableB))
```

is a valid statement because the subqueries are nested.

MapInfo Data Library

MapInfo sells a wide variety of data products that can be used with MapInfo for Macintosh. Data includes street maps, boundary maps, point maps of cities, and statistical data that can be linked to MapInfo maps. The following is a partial listing of the data libraries available from MapInfo. For more information about these or any other data products call the sales information number listed in the front of the *Release Notes* or consult your reseller.

Street Maps

StreetInfo

Digital map data including streets, most street names, highways, highway names, water boundaries, bridges, town boundaries, and address ranges.

StreetInfo Plus

Premium quality digital map data including the above mentioned StreetInfo data, as well as U.S. and interstate highways and railroad tracks. Updated using information in the 1990 Tiger/Line files and U.S. Postal Service data.

Other Street Maps

StreetInfo is also available on CD-ROM (MapInfo for DOS only). Other street data include Canadian StreetInfo, New York City Premium Map, Highway Map, and Railroad Map.

Boundary Maps

County Boundaries

County outlines for the United States.

Census Tracts

Census Tract boundaries which are statistical areas within counties defined by the U.S. Census Bureau as having similar demographics.

Block Groups

Block Group map data is a combination of census blocks comprising a subdivision of Census Tract or block numbering area.

ADIs, DMAs, MSAs

Areas of Dominant Influence and Designated Market Areas are advertising areas defined by Arbitron Ratings Company and A.C. Nielsen Company, respectively. Metropolitan Statistical Areas are outlines of the Census Bureau's definition of metropolitan areas.

101st Congressional Districts

Outlines of the 101st Congressional Districts. Also included are state and congressional district numbers.

Other Boundary Maps

Other boundary data includes 3 and 5-digit ZIP Code boundaries, European, German, and Canadian postal code boundaries, World and States boundaries (including a high resolution state boundaries data file), and a Middle East Map, which includes cities, major rivers and lakes, oil fields, pipelines, tanker terminals, and refineries.

Point Data Files

ZipInfo

A database of 5-digit ZIP Code centroids and point ZIPs (PO Box-only ZIP Codes). ZipInfo can be used to geocode points in your database based on the ZIP Code in which the point is located.

CityInfo

A database of over 48,000 cities and towns throughout the United States. CityInfo can be used to assign longitude/latitudes to points in your database based on the city in which the point is located.

Airports

Contains information on over 17,000 airports in the United States and outlying territories. The basic file includes information on facility name, type (airport, heliport, seaplane etc.) and coordinate fields. The extended file includes additional data, such as addresses, services available, hours of operation, and distance from central business areas.

Statistical Data

StatInfo Population

1990, 1991, and 1995 estimated populations and the number of households in these groups. Population for the current year estimates are also broken down by age group, gender, and minority.

StatInfo Income

Profiles of incomes of an area, including 1990 Buying Power Index (BPI), Effective Buying Income, and the number of households in each earning level.

StatInfo Retail

Statistics which gauge retail activity. This contains total retail sales for 1990, per household retail sales for 1990, and Buying Power Index (BPI) for 1990. It also breaks down retail sales and number of establishments by store groups.

StatInfo Business

Information which gauges employment and manufacturing. It includes the total number of establishments, total manufacturing employment, white and blue collar employment, and Manufacturing Buying Power Index.

StatInfo Canada

This database contains total population, total number of households, total retail sales, Buying Power Index, total effective buying income and average household effective buying income in Canada, broken down by metros.

MapInfo *per Macintosh*

Note alla versione 2.0

SOMMARIO

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Prefazione

Benvenuti alla versione 2.0 di MapInfo per Macintosh. MapInfo 2.0 per Macintosh lavora su System 7. e riconosce Apple Events, Balloon Help e l'uso di Preferences e Folders temporanei di System 7.

Potete installare MapInfo 2.0 su qualunque Apple Macintosh che abbia le seguenti caratteristiche minime

- System 6.0.2 o successivo
- almeno 4Mb di memoria
- almeno 7Mb di spazio disponibile su disco

Prime Fasi è il primo dei tre volumi che compongono il Manuale d'uso di MapInfo, e contiene tutte le informazioni di cui ha bisogno chi inizia ad usare MapInfo. In particolare questo manuale contiene:

- Le istruzioni per l'installazione di MapInfo;
- Una Guida all'Apprendimento di MapInfo;
- La lista dei file usati da MapInfo;
- Le istruzioni per l'uso del digitizer con MapInfo per Macintosh;
- L'elenco dei file dati di esempio che vengono forniti con MapInfo.

Nel caso in cui l'utente non abbia familiarità con questo tipo di programmi, è consigliabile la lettura della Guida all'Apprendimento immediatamente dopo l'installazione. Infatti questa sezione del manuale fornisce informazioni sufficienti a consentire subito un uso produttivo di MapInfo. Dopo avere svolto gli esercizi illustrati nella Guida all'Apprendimento si può imparare di più su MapInfo leggendo gli altri volumi del manuale:

- *Guida Utente di* MapInfo: Una panoramica sui concetti chiave di MapInfo
- *Sommario Comandi di* MapInfo: L'elenco completo dei comandi di MapInfo in ordine alfabetico.

Tutta la documentazione di MapInfo dà per scontata la familiarità dell'utente con Macintosh. In caso contrario l'utente dovrà leggere anche la documentazione di Macintosh.

Installazione di MapInfo per Macintosh

Si descriverà ora la procedura per l'installazione di MapInfo per Macintosh. Se l'utente possiede anche MapBasic, dovrà installare MapInfo prima di MapBasic.

MapInfo viene distribuito su sei dischetti, divisi in due gruppi:

- Dischi Programma (due dischi): programma e file di supporto
- Tutorial e Sample Data (quattro dischi): dati di esempio

Dovete installare entrambi i gruppi di dischi: nel complesso, richiedono circa 5Mb di memoria su disco.

Potete semplificare l'installazione creando un folder per MapInfo sul vostro disco fisso. Il folder non deve essere interno ad altri folder, e deve chiamarsi "MapInfo". Se questo folder non esiste, il programma di installazione vi richiederà di scegliere il folder in cui volete installare MapInfo.

Per installare MapInfo per Macintosh:

1. Inserire il Disco Programma 1 e fare doppio clic su MapInfo Installer
2. Quando richiesto, inserire il secondo disco

Nota: se ancora non si è provveduto, questa potrebbe essere una buona occasione per compilare la lettera di registrazione allegata al programma da inviare quanto prima al rivenditore (in questo modo si potranno ricevere periodicamente le informazioni sugli aggiornamenti al software e si avrà diritto all'assistenza).

Per installare i dati di esempio, ripetere la procedura inserendo il primo disco dati

Nota: Il programma di installazione scompatta e incolla insieme diversi file. NON modifica il Folder o il File di Sistema. Dovete eseguire il programma di installazione, non è sufficiente copiare i file sul disco fisso.

Nel caso in cui incontriate difficoltà o otteniate risultati imprevisti, verificate i dischetti e ripetete la procedura di installazione. Se i problemi dovessero persistere, richiedete assistenza al vostro rivenditore.

Avvio di MapInfo

1. Per lanciare l'applicazione, fare doppio clic sull'icona di MapInfo:
MapInfo

MapInfo 2.0 per Macintosh - Note particolari

Nuove icone per MapInfo

La versione 2.0 di MapInfo utilizza nuove icone. Se sul vostro disco fisso è stata precedentemente installata la versione 1.x, è necessario ricostruire il vostro desktop. Per fare questo, tenete premuti i tasti Command e Option mentre riavviate il vostro Macintosh. Se il vostro computer contiene un disco fisso di grandi dimensioni, la procedura richiederà un po' di tempo; andranno comunque perduti i commenti relativi ai file.

Nomi dei File

I nomi dei file di MapInfo per Macintosh possono essere costituiti da un massimo di 31 caratteri e possono contenere spazi e punti. Alcune finestre di dialogo di MapInfo troncano i nomi con più di 19 lettere e sostituiscono gli spazi con il carattere '_' quando viene visualizzato il nome di una tavola. I nomi dei file possono anche contenere molti punti ('.'), ma MapInfo tronca i nomi dei file dopo il primo punto. Per esempio, aprendo la tavola CUST.ORDERS.JULY, MapInfo sostituisce questo nome con lo pseudonimo CUST.

Importazione di File PICT

MapInfo per Macintosh può importare file PICT che contengano solo dati vettoriali. Alcuni programmi che salvano file in formato PICT includono in questi file anche dati raster (bitmap). Durante l'importazione di questi file, MapInfo ignora i dati bitmap. SuperPaint è un esempio di programma che inserisce informazioni bitmap nei file PICT.

Anti-Virus Symantec

MapInfo non viene caricato o eseguito correttamente se una versione di Symantec Anti Virus precedente alla versione 3.0.9 viene caricata con la definizione del virus T4. Se infatti viene caricata la definizione del virus T4, SAM verifica su ogni programma Macintosh esistente la presenza del virus T4. Un bug nelle versioni SAM precedenti alla 3.0.9, però, impedisce il caricamento di MapInfo dopo la fine della procedura di ricerca del virus. Per ulteriori informazioni contattate la Symantec.

E' possibile superare questa difficoltà eliminando la definizione del virus T4, o utilizzandola solo con versioni SAM 3.0.9 o successive.

Uso del digitizer con MapInfo per Macintosh

Un digitizer è uno strumento che permette di riprodurre su computer le mappe cartacee, creandone una rappresentazione computerizzata. Se ne possedete uno, potete usarlo con MapInfo per Macintosh.

MapInfo consente di scegliere tra modo mouse e modo digitizer. Di solito, si usa il modo digitizer quando si digitalizzano mappe e si usa il modo mouse nelle altre occasioni. Con MapInfo si può scegliere tra queste due modalità di funzionamento premendo la lettera "d".

Con il modo digitizer non si possono richiamare i menu, selezionare gli strumenti o svolgere qualsiasi altra funzione che richiede l'uso del mouse. Non sono attivi neanche i tasti chiave. Per utilizzare queste funzioni, si dovrà disattivare il modo digitizer premendo la lettera "d".

L'opzione Attacco ai Nodi (così come definita con il comando Preferenze del menu Modifica), è attiva durante la digitalizzazione. Comunque la tolleranza dell'attacco è un valore in pixel basato sullo zoom che si sta usando. E' possibile disattivare l'Attacco ai Nodi riducendo la tolleranza a 0.

Se si cambia il livello dello zoom della mappa, o ci si muove sulla finestra Mappa dopo aver selezionato i punti da digitalizzare e attivato il mode digitizer, il cursore potrebbe sparire dallo schermo. Questo perché il punto sulla mappa sul quale si trova il cursore non è più visibile sulla finestra Mappa.

La chiusura automatica del poligono (basata sulla tolleranza dell'attacco) non è attiva durante la digitalizzazione. Si deve fare clic sul tasto 2 per chiudere un poligono.

Apple Events e MapInfo

MapInfo per Macintosh riconosce Apple Events su computer Macintosh con System 7. E' possibile inviare Apple Events direttamente a MapInfo, ad un'applicazione MapBasic attiva, o ad una qualsiasi applicazione che riconosca un'istruzione DoScript. Per ulteriori informazioni sul riconoscimento di Apple Events in MapInfo consultare l'esempio ad essi relativo incluso in MapBasic o le Release Notes relative a MapBasic.

Uno degli aspetti più importanti di Macintosh System 7 è costituito dal supporto per comunicazioni fra applicazioni conosciuto con il nome di Apple Events. Apple Events sono un protocollo che consente ad un'applicazione che riconosca Apple Events di inviare comandi o dati ad un'altra applicazione che riconosca Apple Events. MapInfo riconosce Apple Events e può rispondere ai comandi inviati da altre applicazioni.

Se si utilizza la terminologia delle comunicazioni fra applicazioni, MapInfo assume il ruolo di applicazione server. Ciò significa che MapInfo può ricevere comandi e dati ma non può inviarli (sebbene i programmi MapBasic possano inviare Apple Events): cioè, l'applicazione client inizia la conversazione Apple Events e comanda l'applicazione server. MapInfo supporta anche l'Apple Event Object Model (AEOM).

Questo AEOM permette che le applicazioni del server conservino le definizioni del tipo di oggetto e gli eventi riconosciuti in un resource conosciuto con il nome di 'aete': MapInfo possiede un 'aete'. I programmi in grado di usarlo possono allora determinare automaticamente quali Apple Events vengono riconosciuti da MapInfo; in alcuni casi, queste applicazioni usano queste informazioni per creare le istruzioni specifiche con le quali comunicare con MapInfo. Per le applicazioni che non sono in grado di utilizzare il resource 'aete', è necessario stabilire la modalità con cui il client accede a eventi e oggetti di MapInfo.

Mapinfo può ricevere le seguenti istruzioni:

- Apri Applicazione
- Apri Documento
- Stampa Documento
- Esci dall'Applicazione
- DoScript

Apri Applicazione

Questa istruzione è inviata dal Finder quando viene lanciato MapInfo e normalmente non viene usata in comunicazioni fra applicazioni. Per ulteriori informazioni si veda la sezione riguardante il lancio di Mapinfo.

Apri Documento

Questa istruzione richiede a MapInfo di aprire il documento indicato. I documenti possono essere tavole, file di configurazione, o applicazioni MapBasic.

Stampa Documento

A causa del modo in cui MapInfo è progettato, l'istruzione Stampa Documento non ha un riscontro pratico. Infatti MapInfo non stampa documenti, ma finestre. Inviando a MapInfo il comando Stampa Documento, si ottiene in risposta una finestra di dialogo nella quale viene ricordato che MapInfo può stampare solo finestre. Per stampare da MapInfo usando Apple Events, dovete eseguire dei DoScript che aprano il file, lo visualizzino in una finestra e stampino il documento.

Esci dall'Applicazione

Richiede a MapInfo di chiudere i file aperti e uscire dall'applicazione.

DoScript

E' l'istruzione che ordina a Mapinfo di eseguire un comando. Per esempio, HyperCard può inviare a MapInfo il seguente comando:

```
Send "Run Menu Command 104" to program "MapInfo"
```

Con DoScript, potete inviare qualsiasi comando che possa essere eseguito dalla finestra MapBasic. Ricordate che dovete avere HyperCard 2.1 per eseguire l'esempio sopra riportato.

Apple Events e Reti

Gli Apple Events possono essere inviati attraverso una rete. Ciò significa che applicazioni client come Frontier o HyperCard installate su un Macintosh possono inviare comandi a MapInfo installato su un altro Macintosh. Un Macintosh su cui è eseguita un'applicazione che funge da server (cioè che riceve gli Apple Events) deve avere un programma di collegamento attivo, e il programma di collegamento deve essere accessibile all'utente che invia i comandi. Questo tipo di funzionalità richiede entrambi i Macintosh con System 7.

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The products and services listed in the Catalog are dynamic offerings and subject to constant change as technology and the needs of the marketplace evolve. As such, the Catalog should be considered as a starting point, and the reader is urged to seek out and evaluate additional sources of information to determine what solutions best meet their needs.

Disclaimer

MapInfo Corp. has not tested, evaluated or otherwise examined any of the software or hardware products listed, nor have we investigated, verified or certified the competence of organizations and individuals offering consulting or other services listed. MapInfo Corp. does not endorse, warrant, represent or recommend any of the products or services described in the Catalog.

All of the information contained in the Catalog has been furnished by the organizations themselves. MapInfo Corp. does not guarantee the accuracy of any statements made within the descriptions and does not assume, and hereby expressly and absolutely disclaims, any liability to any party for any loss or damage caused by errors or omissions or statements of any kind in the Catalog (including any of those resulting from transcription or editing), whether such errors or omissions or statements result from negligence, accident or any other cause.

While most of the organizations listed in the Catalog will be eager to respond to your inquiries, MapInfo Corp. cannot guarantee that they will do so. Should you experience difficulty in contacting any of these organizations, please call or write MapInfo Corp.

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Introduction

MapInfo Corporation is pleased to present the second edition of the MapInfo Applications Catalog. We recognize that with every user of MapInfo software comes a unique set of application needs. This catalog is dedicated to meeting those needs by providing our customers with a broad range of pre-packaged and custom application solutions.

This year the Catalog features more than 100 authorized developers providing more than 200 different MapBasic and MapCode solutions.

In addition to the many DOS-based solutions that have been created over the years, this new catalog offers a wide selection of new solutions for our graphic user interface (GUI) customers as well.

We believe this Catalog is the most dependable source of information on MapInfo applications and third party services. With the help of the largest network of independent desktop mapping application developers, MapInfo's customers can now more easily find the ideal solution to meet their specific business challenges.

We gratefully wish to thank our developers for participating in this catalog and for providing quality desktop mapping solutions to our many customers. And we hope that you find this guide useful in helping you to take full advantage of the MapInfo solution.

Sally A. Shapiro
Editor

How to use this catalog

The MapInfo Applications Catalog provides an alphabetical listing of applications and third party services. Please refer to the Table of Contents for a detailed matrix of application categories and markets, along with, the MapInfo platforms that are supported by each application.

Each listing contains:

- a description of the application
- the price[1]
- the application's release date
- the MapInfo platform(s) supported*
- what development languages were used to create the application
- what support is provided
- the contact name(s)
- when the company was established

Applications developed by members of the MapInfo Authorized Developer's Program are marked with the program logo.

We hope you find this guide both comprehensive and convenient to use.

* Unless otherwise noted, the applications listed in this Catalog run with MapInfo Version 4.5 for DOS or greater, or MapInfo Version 2.0 or greater. Contact the developer directly for information regarding any modifications among different versions of MapInfo software.

[1] The price may or may not include the cost of MapInfo itself. Contact the developer directly for further information. Prices are subject to change without notice.

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AVL/Tracking/GPS

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Compliance

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Alphabetical listing of products and services

ACcident Record System (ACRES)

Provides a link between MapInfo and the Accident Record System Database.

A very general accident record database system (KARS20) can be made available from EnGraph or PCTRANS (Kansas University Transportation Center). From the nongraphical data stored in the KARS databases, ACRES will automatically geocode each accident location. KARS20 permits the user to describe accidents at an intersection or between two intersections. In addition to the standard data fields, KARS20 permits the user to define 15 data fields. The combined system supports alias street names and a wide range of accident location descriptions.

Price: $195; The price for KARS20 is $65.

Release Date: 11/92

MapInfo Platform: Windows

Development Languages Used: MapBasic (ACRES), compiled database program (KARS20)

Runtime Version: Yes

Support: Yes

Contact: Carl E. Kurt
ENGRAPH
4840 West 15th Street, Suite 1016
Lawrence, KS 66049
913-865-1436 FAX: 913-864-3787

Company Established: 1987

Address

A tool to simplify the task of address labeling of street files.

The program can be used to simplify the task of creating street files for MapInfo. The process is simplified in many ways. Street names can be entered in advance; after that, the user doesn't need the keyboard at all.

Numbers are picked from "maps" using the mouse. There are also a couple of tools to label the streets with numbers in order to ease checking.

Price: Single license is $395, multiple licenses are $790/first + $165/each additional

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Aki PuustJarvi
KARTTAKESKUS (Map Center)
Opastinsilta 12B, PO Box 85
00521 Helsinki
Finland
901545727 FAX: 9495001394

Company Established: 1919

Address Range Fill-In

Plug the unintentional gaps in your StreetInfo and StreetInfo Version 2.0 files.

This program will automatically search for street segments with missing address ranges and attempt to fill them in on the basis of the surrounding street using simple logic, that you control. Improve your "hit rate" while geocoding and finding. Easy to use, with dialog boxes and on-line help.

Price: $199

Release Date: 2/93

MapInfo Platform: Windows, Macintosh, UNIX

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Stan Lester
TELEMAP CORPORATION
327 South LaSalle Street, Suite 729
Chicago, IL 60604
312-427-1888 FAX: 312-427-1889

Company Established: 1988

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Airline Industry Data Analysis Program

This Mapplication produces thematic maps which show routes between major airports, shaded by the total seating capacity, traffic volume, or other carrier and airport data for each route.

The user provides a dBASE file containing seating capacity data for airport pairs. The system then produces a map which displays these routes as polylines, shaded by capacity. The program uses a Choroplethic shading scheme, where high-capacity routes are displayed using dark, bold lines, and low-capacity routes are displayed using thin, light lines. This makes interpreting the information easy and intuitive. The results are often enlightening, and give a much more realistic impression of where high-capacity airports and routes lie. Customization is available.

Price: Call for quote

Release Date: 9/92

MapInfo Platform: Windows (2.0), Macintosh (2.0)

Development Languages Used: MapBasic, FoxPro, VisualBasic

Runtime Version: Yes

Support: Yes

Contact: Duncan Champney
CHAMPNEY ASSOCIATES
2259 Hunter's Run Drive
Reston, VA 22091-2833
703-264-0440

Company Established: 1991

MapInfo Authorized Developer

Airline Industry Trade Area Analysis Program

This Mapplication automates the production of airport service area cachment (Trade Area) maps.

The operator enters a three-letter airport code, and the system produces a complete workspace for a standard cachment area map. Information shown includes all counties within a 50-mile radius of the target airport, cities within 50 miles that have a population greater than 50,000, competing airports, using user-definable selection criteria, and major highways for all states in the service area. This system also automatically creates labels for all appropriate layers. Fonts, styles, line types, etc. are user-selected. Customization is available. Requires high-res states, counties, US airports, US cities, US highways for all areas to be served.

Price: Call for quote

Release Date: 9/92

MapInfo Platform: Windows (2.0), Macintosh (2.0)

Development Languages Used: MapBasic, FoxPro, VisualBasic

Runtime Version: Yes

Support: Yes

Contact: Duncan Champney
CHAMPNEY ASSOCIATES
2259 Hunter's Run Drive
Reston, VA 22091-2833
703-264-0440

Company Established: 1991

MapInfo Authorized Developer

Alternate Delivery Manager

Manages information required to set up, run, and manage an alternate delivery system.

The Alternate Delivery Manager significantly reduces the time required to set up, run, and manage an alternate delivery system.

- Modifies postal carrier routes to meet the special needs of the alternate delivery industry.
- Manages the complete set of information involved in the set up and operation of an alternate delivery system.
- Processes and maintains address lists, routes, and StreetInfo street maps.
- Generates route maps, delivery manifests, and automatically computes costs for delivery routes.
- Provides reports on orders, actual deliveries, carrier payments, and quality verification.

Price: Call for quote

Release Date: 2/93

MapInfo Platform: Windows

Development Languages Used: VisualBasic, MapBasic

Runtime Version: Yes

Support: Yes

Contact: Steve Thompson
WILLOW BEND COMMUNICATIONS, INC.
PO Box 797485
Dallas, TX 75379-7485
214-248-0451 FAX: 214-732-8807

Company Established: 1988

Americans With Disabilities Act Compliance Software

Assists transportation agencies in complying with requirements of the Americans with Disabilities Act of 1990.

Implementation of the Americans With Disabilities Act (ADA) of 1990 impacts transit and paratransit operators nationwide. All disabled persons desiring to travel during normal fixed-route transit service periods, having an origin and destination within 3/4 of a mile of an accessible fixed-route transit line, must be provided paratransit service.

COMSIS provides a stand-alone Runtime MapBasic application or an add-on MapBasic enhancement to its proprietary CTPS (COMSIS Trip Planning Software), both of which address the difficulties associated with checking ADA trip eligibility.

MapInfo is used to construct the 3/4 mile buffer around fixed-route transit. The MapBasic application is used to find the locations of the trip-ends and determine whether or not they are within this eligibility buffer.

COMSIS recognizes that ADA eligibility check-in is a rather specialized service and is flexible in regard to customizing the software to individual agency needs.

Price: Varies with agency needs

Release Date: 10/92

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: As appropriate for agency needs

Support: Yes

Contact: Roland Rogers
COMSIS CORP.
2275 Swallow Hill Road, Building 500
Pittsburgh, PA 15220
412-279-9110 FAX: 412-279-9114

Company Established: 1969

Approximiter

Approximiter allows the user to approximate coordinates of all nodes and lines in selected map layers which are closer than the specified distance.

The program verifies all "star" and T snapped lines. If the line distance is shorter then the user-defined deviation, the tool approximates their coordinates. In case of snapping (T, L, etc.), different methods of approximation and user-defined conditions are used.

All approximations are presented in the report file. The program can be used with imported or created map layers (such as for a street file).

Price: $199

Release Date: 9/92

MapInfo Platform: DOS, Windows

Development Languages Used: C

Runtime Version: No

Support: Yes

Contact:
Blago Simenov
DATAMAP LTD
56 Oak Meadow Blvd.
Scarborough, ON M1E 4G1
Canada
416-287-3240
FAX: 416-287-3476

Christo Assenov
DATAMAP
EUROPE LTD
52 Kniaz Boris I St.
Sofia 1423
Bulgaria
+3592-524-365
FAX: +3592-522-913

Company Established: 1975

Argos/MapInfo Link

A utility to interface with Argos, a worldwide satellite tracking system.

The Argos/MapInfo Link allows the user to download transmitter's positions from the Argos processing center using a modem and a phone line. Positions are saved in a point file and displayed with a user-defined symbol, according to the transmitter number. Proximity calculations are performed against closest cities and user-defined utilities. The application generates a tracking line connecting the locations in chronological order. The user can choose to display all locations of a selection of transmitters within a date range, or only last locations.

Applications of Argos and the Argos/MapInfo Link include tracking of hazardous material and other land mobiles.

Price: $1,200

Release Date: 6/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Marc Leminh
NORTH AMERICAN COLLECTION AND LOCATION BY SATELLITE (NACLS)
9200 Basil Court, Suite 306
Landover, MD 20785
301-341-1814 FAX: 301-341-2130

Company Established: 1987

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ART+

ART+ takes information from a state accident form and displays locations of accidents on computerized maps.

Public Sector Data Systems, Inc. has developed two products for use by the Accident or Traffic Safety department of a police department. Accident Records Tracking System (ART) is a state-of-the-art system that computerizes accident information. ART+ extends the features of ART by integrating it with MapInfo.

Information extracted from the accident file can be displayed as a point on a digitized street map. The computer display becomes an electronic pin map. Further analysis can be done using MapInfo's searching features — i.e. — show all accidents within 150 feet of an intersection.

Price: Call for quote

Release Date: 1/91

MapInfo Platform: DOS

Development Languages Used: FoxPro

Runtime Version: No

Support: Yes

Contact: Ira Zweifler
PUBLIC SECTOR DATA SYSTEMS INC.
PO Box 603
East Brunswick, NJ 08816
908-257-1063

Company Established: 1987

ASCNDMMI

A utility to align map segments in ascending order.

ASCNDMMI aligns map segments (FROM point - TO - point) with ascending (LOW - HIGH) addresses. Aligning map segments in ascending address order makes maps even more intuitive and easier to edit.

Price: $295

Release Date: 8/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Todd Radulski
DMSC, INC.
2923 Lowery Drive
Oviedo, FL 32765
407-366-5611 FAX: 407-365-1145

Company Established: 1985

Auto-Map Creation and Update

An application that allows the user to create new map segments or update existing maps, adding new streets, roads and other routes.

Mapfile segments are created using a vehicle equipped with a GPS (Global Positioning Satellite) unit. Data is collected in the field while travelling streets, roads, and other routes. The positioning information is imported into MapInfo. Street or segment name and addressing is accomplished with an auto-name and address functions. An individual segment function is also provided.

This application can also be used to locate specific buildings, sites and facilities and display them on maps using standard symbols or user-defined symbols. This function is particularly useful in either business or educational campus layouts where streets and roads are not available on existing maps. Buildings can be given specific site locations and sub-addresses at main map addresses.

Price: $695

Release Date: 10/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Lionel Kattner
KSI SYSTEMS COMPANY
7115 Lupton Drive
Dallas, TX 75225
214-361-4610 FAX: 214-361-4610

Company Established: 1985

MapInfo™
Authorized Developer

Autocode

An application to permit the easy plotting of traffic accidents by reference to vicinity of intersection, and the easy analysis (simple and complex) of such accidents.

Designed for use by people with little or no computer expertise. Full publishing features to permit preparation of reports. All functions highly automated to ensure ease of use.

Price: Call for quote

Release Date: 1/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact:

Geoff Kendall
Dataview
Solutions U.K.
Suite IJ,
48 Berkeley Square
London, W1X 5DB
England
071 409 2627
FAX: 071 409 1045

Ernst Josefik
Dataview Solutions
Australia
178 Pacific Highway
St. Leonards 2065
NSW Australia
02 436 1199
FAX: 02 906 3499

Company Established: 1990

Automated Transportation Management System (ATMS)

Computer Systems Integration (CSI) has developed an Automated Transportation Management System that uses MapInfo applications software and TIGER files to provide transportation scheduling services for the Peninsula Transportation Authority (PENTRAN).

This PC-based system, using a CSI-developed "event, time, and resource optimization" algorithm, generates a daily schedule of rider pick-up and drop-off times. Assigns customers to vehicles, and produces highly effective vehicle pick-up and drop-off times, assigns customers to vehicles, and produces highly effective vehicle schedules for driver use.

- CSI can configure ATMS to meet individual Americans With Disabilities Act requirements.
- Interactive databases allow dispatchers to quickly accommodate customer trip requests.
- Optimal Vehicle Routes are generated using actual streets and customers' addresses.
- Statistics are automatically tracked and calculated by ATMS.
- Reports and Listings are user-defined and provide a means to evaluate revenue data, services provided and vehicle operator performance.
- Daily Driver Schedules automatically generate customer pick-up and drop-off times

Price: Call for quote

Release Date: 11/92

MapInfo Platform: DOS, UNIX

Development Languages Used: C

Runtime Version: Yes

Support: Yes

Contact: Richard Shaner
COMPUTER SYSTEMS INTEGRATION
11832 Rock Landing Drive, Suite 201
Newport News, VA 23606
804-873-0995

Company Established: 1984

Automatic Vehicle Locator System (AVLS)

Real-time vehicle tracking software using Global Positioning Satellites (GPS) to track each vehicle and display information on MapInfo generated maps.

- Global Positioning Satellites (GPS) determine a vehicle's precise location, speed and direction.
- Graphical Map Display allows managers and dispatchers to quickly assess a vehicle's situation.
- Fleet monitoring and management is provided through real-time display.
- AVLS can be customized to satisfy unique requirements.
- User-defined reports provide a means to evaluate and document revenue data, services provided, and driver performance.

Price: Call for quote

Release Date: 2/92

MapInfo Platform: DOS, UNIX

Development Languages Used: C

Runtime Version: Yes

Support: Yes

Contact: Richard Shaner
COMPUTER SYSTEMS INTEGRATION
11832 Rock Landing Drive, Suite 201
Newport News, VA 23606
804-873-0995

Company Established : 1984

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Backflow Prevention Software

An application to assist in the tracking of backflow devices.

Backflow Prevention Software tracks backflow device installations, inspections, and re-inspections. Every municipality needs to track this information. Backflow Prevention Software makes this task simple by providing menu commands that help determine installations and track re-inspections for an unlimited number of years. The program also shows the last two inspections including PASS/FAIL results and reasons. You can visually see areas due for installations for a specific period, determine how many installations have been done for that area, shade areas (or even devices) by specific values. With that information, you can even see where the device is installed on the property. Further analysis can be done by seeing where backflow devices are needed and generate a status report on a specific area.

Price: $895 single user

Release Date: 6/89

MapInfo Platform: DOS, Windows

Development Languages Used: FoxPro 2.0

Runtime Version: Yes

Support: Yes

Contact: Bob Heitner
HEITNER ASSOCIATES INC.
1919 North State Road 7, Suite 202
Margate, FL 33063
305-974-1447 FAX: 305-974-1565

Company Established: 1987

Bank Applications

Bank Marketing provides this service to banks providing reports on Community Reinvestment Act (CRA) compliance and Home Mortgage Disclosure Act (HMDA) compliance.

This service provided by Bank Marketing Group provides adjusted family income and other demographic information based on census tract boundaries. Files work directly with MapInfo tract boundary files and are available for all MSA (Metropolitan Statistical Area) counties. Resulting data fully meets current bank regulatory requirements.

Price: $500 per county for income files. Other information quoted separately.

Release Date: 9/90

MapInfo Platform: DOS, Windows

Development Languages Used: MapCode

Runtime Version: Not applicable

Support: Yes

Contact: Terence B. O'Brien
BANK MARKETING GROUP-GENERAL ANALYTIC CORPORATION
117 Leeds Road
Mt. Laurel, NJ 08054
609-234-5261 FAX: 609-234-5261

Company Established: 1989

MapInfo
Authorized Developer

BaseInfo

BaseInfo shows the status and position of every vehicle in a fleet and allows the user to make effective fleet resource management decisions.

This application allows a dispatcher to view the locations and status of all or selected vehicles in his fleet. Both a dispatcher and call-taker functionality are included in this application. Event information and location can be automatically communicated from the dispatcher to the vehicle. If BaseInfo is used in conjunction with Logistic Mapping Corp.'s VehicleInfo, this event information can be automatically displayed on a digital map in the vehicle.

BaseInfo can be used by delivery and courier fleets to significantly improve "just-in-time" performance. BaseInfo can be integrated to your existing dispatch systems. BaseInfo integrates your communications, Computer Aided Dispatch, and vehicle tracking functions into one complete system. BaseInfo is a system which can be tailored to meet your needs.

Price: Call for quote

Release Date: 3/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: Todd Radulski
LOGISTIC MAPPING CORP.
2923 Lowery Drive
Oviedo, FL 32765
407-366-5611 FAX: 407-365-1145

Company Established: 1985

MapInfo
Authorized Developer

BDYGRID (Boundary Grid)

BDYGRID is a tool to create grids within pre-designed boundaries.

BDYGRID will make a grid with a boundary file wherein each square within the grid is created as a separately labeled sub-boundary that can later be thematically shaded. Grids of nearly any size can be created many times faster than the time it would take to manually draw them.

For flexibility, selection can be done in three different ways:

- Using the crosshairs to choose starting and ending corners
- Selecting any point within an existing boundary
- By specifying the actual coordinates for the upper left and lower right corners

The size of each box within the grid can also be determined by choosing either the distance desired between each grid line or the total number of columns and rows required.

Price: $195

Release Date: 12/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Can be sold as Runtime, as well as with full MapInfo product.

Support: Yes

Contact: Ken Whitcomb or Keith Rigaulot
GEOMETRIX, INC.
1582 N. Meadowcrest Blvd.
Crystal River, FL 34429
904-563-0369 FAX: 904-563-5295

Company Established: 1986

BDYUPDATE (Boundary Update)

Boundary Update assists the user when updating and recording changes to boundary files.

Now, existing boundary files, such as sales territories, which are created from ZIP Code boundary files can be modified. This system prompts the user for the information needed to modify the boundary. Once all the information is given, boundaries are automatically adjusted and the new information is written to a database.

Price: $475

Release Date: 5/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Carl E. Kurt
ENGRAPH
4840 West 15th St., Suite 1016
Lawrence, KS 66049
913-865-1436 FAX 913-864-3787

Company Established: 1987

Building and Zoning Software

An application to assist in tracking building permits and contractors.

Building and Zoning Software is a menu-driven program that performs two main functions: keeping track of all the contractors and their licenses, and keeping track of all the building permits and fees within a city. This program generates a number of reports, including an end of month report. Linked to MapInfo, Building and Zoning Software allows a municipality to see growth patterns by permit and perform thematic mapping of associated fees.

Price: $795 single user

Release Date: 10/89

MapInfo Platform: DOS, Windows

Development Languages Used: FoxPro 1.02

Runtime Version: Yes

Support: Yes

Contact: Bob Heitner
HEITNER ASSOCIATES INC.
1919 North State Road 7, Suite 202
Margate, FL 33063
305-974-1447 FAX: 305-974-1565

Company Established: 1987

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Carefinder

An application to assist Home Health Care (HHC) organizations in planning services.

Carefinder utilizes geocoding to display patient and home health employee location data on the service area's geocoded maps. By following scheduling methodology, the user interacts with the patient requirements, matches services requirements with certified skills of the HHC employees, and examines alternative scheduling routes and patient assignments. The mapping route is printed to identify and label the visit sites, the sequence of delivery and distance traveled.

Visual interaction allows the user to adjust and prioritize schedules. Carefinder greatly improves productivity by reducing travel time between patient visits, allowing HHC employees to be utilized at their highest skill and certification levels, considering also such factors as language fluency, transportation mode and availability, etc.

Price: Call for quote

Release Date: 1989

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Jim Forth
FORTH & ASSOCIATES LTD.
120 Erie Boulevard
Schenectady, NY 12305
518-377-3716

Company Established: 1986

Carteaugraph

An application for the management of water problems.

Carteaugraph can be used in the management of the following:
- Capitation
- River levels and alarms
- Water distribution
- Water parameters (technical and chemical)

Carteaugraph handles the automatic data-logging system from NEWLOG.

This application is modular and needs to be customized.

Price: 30KF to 100KF; call for current U.S. pricing

Release Date: 1/93 (Windows version)

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: Joël Hutin
METOD SARL
Prologue 2, No 10
Innopole
31312 Labege Cedex
France
(33) 61 39 12 92 FAX: (33) 61 39 15 19

Company Established: 1991

CASIP

An application for airport maintenance and inspection.

CASIP is an automated approach to the airport safety self-inspection requirements found in FAR Part 139 and incorporates the standards established in FAA Advisory Circular No. 150/5200-18B. Functions include:
- managing all self-inspection components such as pavement areas, safety areas, markings and signs, and lighting.
- providing a chronological listing of all events entered into the Duty Log.
- searching and locating Duty Log entries by date, range of dates or subject.
- generating and tracking safety related documentation such as Work Orders, NOTAMS and memorandums.
- flagging open/past due documents.
- compiling reports of safety inspection data such as open item lists, current inspection status and recap of past inspection findings.

System options include:
- computerized airport sketch to display inspection discrepancy locations.
- reference library providing text of selected FARs and Advisories.
- FAR Part 77 Obstruction Analysis module.
- communication/network modules for shared access to data and/or field entry of events.
- customization to meet individual airport requirements.

Price: $6,800 and up

Release Date: 1/91

MapInfo Platform: DOS

Development Languages Used: FoxPro

Runtime Version: Yes

Support: Yes

Contact: Leonard Kowalski
SE TECHNOLOGIES, INC.
3605 Vartan Way
Harrisburg, PA 17110
717-541-8630 FAX: 717-541-8649

Company Established: 1989

CDM$_7$ for Community Development Management

An application to assist municipalities with community development.

CDM$_7$ is a comprehensive application used by governments to monitor and control the entire development review process and evaluate the impact of proposed development on available public infrastructure capacity.

CDM$_7$ is networked, so all user departments work with a common, integrated, database to carry out:

- Development review - tracks due date, conditions for development approval, schedules reviews.
- Building permitting - verifies contractors, issues permits, schedules inspections, generates COs.
- Code enforcement - schedules inspections, generates lien notices, tracks application complaints.
- Infrastructure facility management - tracks inventory and CIPs, determines project demand and available capacity.

Price: Determined as part of a full project proposal

Release Date: 6/91

MapInfo Platform: DOS

Development Languages Used: Advanced Revelation

Runtime Version: No

Support: Yes

Contact: Bob Wallace, P.E.
TINDALE-OLIVER AND ASSOCIATES, INC.
111 South Parker Street, Suite 500
Tampa, FL 33606
813-254-8862 FAX: 813-254-1146

Company Established: 1988

CEDS (The Community and Economic Development System)

CEDS is a comprehensive computer mapping and data analysis tool focused on Business Attraction and Business Development functions.

Comprised of eight information decision modules, CEDS automates the following:

- *Zone Builder* allows users to create custom zones by aggregating existing boundaries and data
- *PopProject* performs population projections based on Cohort Survival method
- *Convert 'B* assigns International Schedule B product codes to local business SIC codes
- *Trade Leads* automatically matches foreign trade leads with local businesses
- *CENSATIONAL MAPPER* automatically creates over 200 census thematic maps at Block Group and Tract levels
- *MCDINFO* compares regional municipalities thematically and automatically generates municipal profiles
- *Street Select* allows user to display pre-defined streets and highways
- *Industry?* generates queries on available industrial sites

Price: Call for quote

Release Date: 10/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: David Semo, Dan Jardine, or April Davis
GEO DEMOGRAPHICS, LTD.
69 Arch Street
Johnson City, NY 13790
607-729-5220

Company Established: 1984

CelluLink

An application to support real-time base station display and tracking of fleet-vehicle location using GPS position data received via cellular telephone.

CelluLink processes GPS-derived position data received via cellular telephone and other communications links from fleet vehicles and symbolically indicates the vehicle's position on a regional map. CelluLink provides the tools to define and maintain a database of a minimum of 50 vehicles and provides additional support features such as:

- Automatic or operator-initiated position inquiry
- Emergency alerts
- Map detail filters
- Zoom in/zoom out
- Mouse-based operator interface
  - Click on vehicle symbol to obtain vehicle information
  - Pick vehicle from menu to learn latest map position
  - Pick locations to learn shortest routing
  - Re-center map on cursor or selected vehicle

Price: Call for quote

Release Date: 3/93

MapInfo Platform: Windows

Development Languages Used: C

Runtime Version: Yes

Support: Yes

Contact: Dennis Maywald
CAE LINK CORP.
11800 Tech Road
Silver Spring, MD 20904
301-622-4400, ext. 6867

Company Established: 1992

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MapInfo®
Authorized Developer

The Censational Mapper

A unique application designed for computer and mapping novices that creates thematic Census maps of all 1990 STF3a data.

Creates Census map or local data overlays almost instantly, with titles, legend, and scale. All data is pre-packaged with STF3 Census data for tract, block groups, and MCDs, boundaries for MCDs, tracts, block groups, finger-line street, and censational software for any county, U.S.A. It also includes the ability to create Census Profiles for any geographic scale from STF3a. Additional functions are street locating, base mapping, PIN_Maps. One price for everything!

Price: $895

Release Date: Spring 1992

MapInfo Platform: DOS, Windows available soon

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: David Semo, Dan Jardine, or April Davis
GEO DEMOGRAPHICS, LTD.
69 Arch Street
Johnson City, NY 13790
607-729-5220

Company Established: 1984

Chameleon/CMS for Animal Care

Integrated software modules for the whole animal care system.

Utilizing the latest in client/server technology, this graphics-based data management product is designed for case management in any environment where animals are tracked: communications, dispatch, field officers, kennel, medical, licensing, reports and accounting. The object-oriented core of the architecture provides the flexibility to easily customize its data structure to the needs of the office. By employing a graphical user-interface, the program can be quickly mastered by all levels of users. The integrated communications package allows for a variety of protocols to run concurrently. Users can connect to query data resources in the background. Chameleon/CMS is offered in either a Windows or OS/2 version to operate as a powerful front end for the world of micro, mini, or mainframe computers.

Price: Determined by site size

Release Date: 1990

MapInfo Platform: Windows

Development Languages Used: C

Runtime Version: Yes

Support: Yes

Contact: Sam Hoover
HLP, INC.
1991 Ponderosa Lane
Prescott, AZ 86301
602-257-4370 FAX: 602-776-9935

Company Established: 1984

CHAS (Comprehensive Housing Assistance Strategy) INFO

CHAS is an application designed for planning and community development departments. It provides instant access to data valuable to designing and updating federal CHAS applications.

CHAS Info provides block group data profiles, including 1990 STF 3a data:

- Tenure - renter/owner
- Income by race
- Income below poverty level
- Hispanic data
- Employment among others.

Price: $295

Release Date: 12/92

MapInfo Platform: DOS

Development Languages Used: dBASE related software

Runtime Version: Yes

Support: Yes

Contact: David Semo, Dan Jardine, or April Davis
GEO DEMOGRAPHICS, LTD.
69 Arch Street
Johnson City, NY 13790
607-729-5220

Company Established: 1984

The City Qualifier

An analytical tool to find the best location for housing, based on what is important to the user.

The use of the 1990 Census Bureau and US Chamber of Commerce information on lifestyle is now available to users to make an intelligent decision as to where to live. Information concerning population, incomes, jobs, weather, cultural aspects, parks, etc. is now at the user's disposal.

The user sets the rate of desirability or not so desirable aspects which affect life, business, community or retirement. Then, the user sets the radius of effective influence around the potential site (city) candidate. Also, the user determines which cities or areas are to be stacked up against each other and which are to be eliminated from consideration for whatever reason.

As variables are changed, a list of the top twenty-five areas according to the rating system will be displayed.

An advanced version tied into detailed mapping is available for very sophisticated analysis.

Price: Call for quote

Release Date: 9/92

MapInfo Platform: All MapInfo platforms

Development Languages Used: Dependent upon platform and customer's requirements

Runtime Version: Yes

Support: Yes

Contact: Ron Carlson
PAINTED INFORMATION SYSTEMS, INC.
317 West Fourth Street
Davenport, IA 52801
319-323-MAPS FAX: 319-322-8426

Company Established: 1989

CitySystems (Fire/Hazmat)

A program for municipalities for fire/police dispatch.

CitySystems Fire and Hazardous Materials Dispatch Module provides a dispatch system and a windowed view of the fire or hazardous spill location at various zoom levels. In addition, the system shows the nearest hydrants and displays the flow and pressure available. Any hazardous materials sites are indicated by a special symbol, and the user can query the data for the location (based on SARA Title III submissions). The user can magnify the area to include the floor plan and location of materials within the site.

Price: $3,925

Release Date: 10/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Ken Whitcomb or Keith Rigoulot
GEOMETRIX, INC.
1582 North Meadowcrest Blvd.
Crystal River, FL 34429
904-563-0369 FAX: 904-563-5295

Company Established: 1986

CitySystems (Utility)

A program for municipalities for utility planning.

CitySystems Municipal Utility Module provides for the geographical display of items, such as color-coded water and waste water lines, manholes, valves, hydrants, pumps, lift stations, and any other geographic feature the user desires.

Data on preventive maintenance history, flow rates, hydrant capacities, customers, and assessments can be retrieved by pointing at the desired location and clicking the mouse button. Match visual representations of customers files or laterals and meter locations to detect non-paying locations. An optional Planning Module is available which utilizes the same maps and base system.

Price: $3,925

Release Date: 10/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Ken Whitcomb or Keith Rigoulot
GEOMETRIX, INC.
1582 North Meadowcrest Blvd.
Crystal River, FL 34429
904-563-0369 FAX: 904-563-5295

Company Established: 1986

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63-5295

Closest Facility Finder

Facilitates telemarketers or CSRs locating the closest store or facility for customers.

This application manages the locating of a store or facility for customers. It is designed for 800 service. Besides locating the stores, the system tracks incoming calls for further analysis. This can help define the demand for your products. The system works with the following data: street address, Zip Code and/or city name. The system can be customized to your specifications.

Price: Call for details

Release Date: Second quarter 1993

MapInfo Platform: Windows, Macintosh, Sun, Hewlett-Packard

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: Alex P. Machinis
ELASTIS CONSULTING OF CHICAGO
PO Box 1605
Des Plaines, IL 60017-1605
708-299-6952 FAX: 708-299-6990

Company Established: 1990

Comprehensive Permits Data System (CPDS)

This application creates a comprehensive permits tracking system suitable for mapping, as well as generates a wide variety of permit forms:

- Building
- Electrical
- Signs
- Swimming Pool

CPDS also records costs, lot and owner specific information, as well as property complaints, planning, and zoning data.

CPDS also operates with a local assessors/real property file. It appends permit data to this master file. Planning and Community Development Departmental oriented.

Price: $495

Release Date: 12/92

MapInfo Platform: DOS

Development Languages Used: dBASE related software

Runtime Version: Yes

Support: Yes

Contact: David Semo, Dan Jardine, or April Davis
GEO DEMOGRAPHICS, LTD.
69 Arch Street
Johnson City, NY 13790
607-729-5220

Company Established: 1984

Continual Update Dispatch System (CUDS)

CUDS promotes the efficient use of service personnel by enabling a dispatcher to prioritize their dispatching to the appropriate service call.

CUDS visually locates service calls and technicians in reference to service territories. It determines the proximity of technicians to prioritized pending service sites including a comparison of the client's needs to the technician's qualifications.

Price: Call for quote

Release Date: 12/90

MapInfo Platform: DOS

Development Languages Used: C

Runtime version: No

Support: Yes

Contact: Anthony Campbell
ATG Incorporated
205 Regency Executive Park
Charlotte, NC 28217
704-521-8113 FAX: 704-521-9711

Company Established: 1988

Contour Maps for MapInfo

Contour (elevation) maps digitized from US Geological Survey 1:24,000 and 1:100,000 scale maps.

Contour Maps for MapInfo are digital maps of elevation information. They are provided in MapInfo format, ready to run on your PC or workstation. These maps show elevations in the form of contour lines. Each line represents a single elevation value, which is included as an attribute of the line. The lines can easily be labeled and combined with other MapInfo data layers to build complete maps and applications. The contours are digitized from official US Geological Survey 1:24,000 scale and 1:100,000 scale topographic maps. These maps are the official base maps of the United States. The entire country is available. Digital contour maps are ideal for site planning, road development, utility planning, or any application where elevation information is important.

Note: All contour maps are custom made. Please allow four to six weeks for delivery.

Price: Variable, depending on area

Release Date: 3/93

MapInfo Platform: Windows, Macintosh, Sun

Development Languages Used: none

Runtime Version: No

Support: Yes

Contact: Michael F. Bauer
AMERICAN DIGITAL CARTOGRAPHY, INC.
3003 West College Avenue
Appleton, WI 54914
414-733-6678 FAX: 414-734-3375

Company Established: 1988

COORDTR (Coordinate Transformation)

A utility to assist in transforming a database with existing coordinates to latitude and longitude.

Coordinate Transformation assists the user in geocoding an existing database to a mapfile. It is assumed the X and Y coordinates, relative to a local coordinate system, are available in the existing database. COORDTR prompts the user for the positive direction of each local coordinate system axis and for the origin of the local coordinate system. Based on this input, COORDTR will calculate the mapfile coordinates, latitude and longitude, required to automatically geocode the database to the map and will place these results in two fields in the database. The latitude and longitude of the map file have been considered in the coordinate transformation.

Price: $75

Release Date: 5/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Carl E. Kurt
ENGRAPH
4840 West 15th St., Suite 1016
Lawrence, KS 66049
913-865-1436 FAX: 913-865-3787

Company Established: 1987

Country Roads™

Road inventory management system for local governments including town, village, city, and county (rural).

Country Roads™ is a road inventory system that utilizes the municipal map with separate layers for roads, rivers, lakes, intermittent rivers, intermittent lakes, airports, etc., and allows the municipal government the ability to pinpoint the following:

- Location of culverts, bridges, access roads, oil wells, residences and accidents
- Road haying permits
- Road herbicide permits

Complete construction and gravelling system is included for planning, as well as a complete assessment system.

Price: Call for quote

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: M, Objectvision, Q&E Database Editor, R&R for Windows.

Runtime Version: Yes

Support: Yes

Contact: Jim Georgeson
DATAVISUALS CANADA, INC.
703 Park Plaza
10611 - 98 Avenue
Edmonton, Alberta T5K 2P7
Canada
403-424-1785 FAX: 403-424-1785

Company Established: 1983

MapInfo®
Authorized Developer

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IS-ALI

CRIS (Crime Reporting Information System)-ALI is a real-time MapInfo link to the CRIS-CAD dispatching system.

CRIS-ALI is an application written in MapBasic for use with MEGG's PC-based CRIS-CAD Computer Assisted Dispatching System. The software provides for process communication between CRIS-CAD and MapInfo. As incident calls for service are geo-verified for address validation, CRIS-ALI triggers the automatic display of the location of occurrence. Address search information is extracted from the E911 data stream, automating the data entry process for the dispatcher.

Price: Configuration dependent

Release Date: Second quarter 1993

MapInfo Platform: Windows

Development Languages Used: MapBasic, C++

Runtime Version: Call for details

Support: Yes

Contact: Mark Stiegemeier
MEGG ASSOCIATES, INC.
2716 Enterprise Parkway
Richmond, VA 23294
800-666-6344 FAX: 804-273-1073

Company Established: 1984

Map

CRIS (Crime Reporting Information System)-Map is a set of utilities for extracting CRIS database for MapInfo use.

CRIS-Map is a set of utilities to extract MapInfo compatible point data from geo- verified information in the CRIS system. MEGG's Crime Reporting Information System (CRIS) software includes Public Safety and Criminal Justice applications for records management, dispatching and general police, fire, jail and court operations. CRIS-Map allows for geographic analysis of CRIS database records. The most valuable application is Crime Analysis - where the user is able to map the occurrences and patterns of criminal activity.

Price: Configuration dependent

Release Date: Second quarter 1993

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: Call for details

Support: Yes

Contact: Mark Stiegemeier
MEGG ASSOCIATES, INC.
2716 Enterprise Parkway
Richmond, VA 23294
800-666-6344 FAX: 804-273-1073

Company Established: 1984

C/TNS (Computerized Telephone Notification System)

An application for a telephone notification system.

C/TNS (Computerized Telephone Notification System) is an automated telephone management system used for emergency notifications of groups or populations. MapInfo is used to geographically mark populations at risk from chemical release, flooding, radiological release, etc. Used by firms such as Kennedy International Airport, Exxon, Arco and others.

Price: $30,000 - $250,000

Release Date: 1/88

MapInfo Platform: DOS

Development Languages Used: C

Runtime Version: Yes

Support: Yes

Contact: Miles Palis
DI/COM LTD.
3041 Lexington Rd.
Nicholasville, KY 40356
606-885-2273 FAX: 606-887-5739

Company Established: 1987

Database Solutions for Government Problems (Macintosh)

This application will enable local governments to utilize a Geographic Information System to manage their problems.

MapPower Corporation has developed database applications as immediate solutions for the management of local government problems:

- Community Management
- Environmental Management
- Infrastructure Management
- Emergency Management
- Health Management
- Transportation Management

Price: $695 per application database (price does not include MapInfo for Macintosh); additional customization available

Release Date: 1/91

MapInfo Platform: Macintosh

Development Languages Used: 4th Dimension, C

Runtime Version: No

Support: Yes

Contact: Victor Siegle
MAPPOWER CORPORATION
17 Main St.
Suite 313
Cortland, NY 13045
607-756-4150 FAX: 607-756-5550

Company Established: 1989

MapInfo® Authorized Developer

DataLOCK™

Provides the developer the ability to distribute limited function .MBX applications and/or data while providing over-the-phone authorization.

DataLOCK provides each developer a unique series of authorization codes with interface to allow customers the ability to unlock additional function, data, or protection to their application. DataLOCK comes standard with 2,500 unique codes, .MBX callable User Entry Screen, and .DBF file for your authorization database. Additional codes are also available.

Price: $75

Release Date: 2/93

MapInfo Platform: Windows

Development Languages Used: MapBasic, VisualBasic, C

Runtime Version: Not applicable

Support: Yes

Contact: Ralph Jannini
CONSULTEK SERVICES
87 Belmont Street, Unit 2
North Andover, MA 01845-2304
508-975-8242 FAX: 508-474-8949

Company Established: 1988

MapInfo® Authorized Developer

DAVL - Dispatch Automatic Vehicle Location

DAVL is a system that provides the real-time location of mobile units in a fleet management organization on MapInfo screens.

GPS (Global Positioning System) is used in each mobile unit for computation of the unit's position. Existing communication links, such as private radio VHF and UHF are employed to transmit these positional data to the dispatch center. By implementing the Map Matching technique, the name of the street or road being traveled on, as well as the speed and elevation are provided. The program can monitor any number of mobile units simultaneously, with the stationary mobile units distinguished from the moving ones.

Price: Call for quote

Release Date: 6/91

MapInfo Platform: DOS

Development Languages Used: MapCode, Microsoft C

Runtime Version: Yes

Support: Yes

Contact: Ron Taba-Tabai
COMPUMATIC COMPUTER CONSULTING INC.
400 604 First Street SW
Calgary, Alberta T2P 1M7
Canada
403-261-0903 FAX: 403-261-0904
Edmonton Office: 403-448-1644

Company Established: 1990

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Day One Automated Mapping System

A property location system for Real Estate Appraisers.

AMS (Automated Mapping System) locates and labels properties by address. AMS calculates distances between subject and comparable properties. AMS includes numerous functions for labeling and identifying properties. AMS also contains a property database that stores information on all properties located with AMS. Multi-user versions supported under Novell.

Price: $995

Release Date: 7/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Robert Neiss
DAY ONE, INC.
435 Devon Park Drive, Suite 701
Wayne, PA 19087
215-293-9777 FAX: 215-293-9749

Company Established: 1980

Decision Management GIS

A management tool for corporate decision making.

Decision Management GIS is an on-site information system that provides the mid- to high-level decision maker a means of displaying, analyzing, and reporting critical corporate information geographically, as well as accessing that information from a map. Essential for any manager who needs to see the spatial relationships of data and conduct analyses based upon the relative locations of that data.

Price: Call for proposal

Release Date: Fall 1991

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Donald Karrer
GENERAL ANALYTICS
CORPORATION (GAC)
8133 Leesburg Pike, Suite 850
Vienna, VA 22182
703-847-4660 FAX: 703-506-2176

Company Established: 1986

The Desktop Mapping Handbook, 1993 Edition

The Desktop Mapping Handbook provides a wealth of reference information for people who use MapInfo and MapBasic.

Topics include essentials of geography, workgroup planning, database management, market research, spatial analysis, statistics, technical terms, map design, publishing methods, US Census data and other data sources.

The Desktop Mapping Handbook includes tips and techniques for MapInfo, MapBasic, AutoCad and FoxPro in the Windows environment. It also reviews file formats and data compression tools.

Tutorials place the reader in a workshop that designs projects in market research, regional planning and other fields. Each example is based on a real project and innovative method.

GeoData Analytics plans to publish a revised and updated edition each year. Semi-annual updates and utilities will be available on disk.

Price: $20 postpaid in North America, $28 elsewhere

Release Date: 3/93

MapInfo Platform: Windows

Development Languages Used: MapBasic, FoxPro

Runtime Version: Not applicable

Support: Call for details

Contact: John Connery
GEODATA ANALYTICS, INC.
19 Parker Street
Melrose, MA 02176
617-665-8130 FAX: 617-665-5864

Company Established: 1991

MapInfo®
Authorized Developer

Digital Line Graph Maps for MapInfo

Base maps derived from USGS 1:100,000 Digital Line Graph (DLG) files. Information on roads, water features, and railroads is included.

Digital Line Graph (DLG) maps are derived from official US Geological Survey 1:100,000 scale maps. They are provided in MapInfo format, ready to run on your PC or Workstation.

These maps include separate layers for roads, railroads, and water features. They are available for the entire United States, except Alaska. All DLG maps comply with the USGS National Map Accuracy Standard. They are all accurate to at least 167 feet (on average); most are accurate to about 50 feet.

DLG maps are ideal for many applications, including base maps for civil engineering, cable TV mapping, pipeline and railroad routing, utility management, real estate development, and natural resource management.

Note: DLG maps do not include road names or address information.

Price: Variable, depending on area

Release Date: Second quarter 1993

MapInfo Platform: Windows, Macintosh, Sun

Development Languages Used: Not applicable

Runtime Version: No

Support: Yes

Contact: Michael F. Bauer
AMERICAN DIGITAL CARTOGRAPHY, INC.
3003 West College Avenue
Appleton, WI 54914
414-733-6678 FAX: 414-734-3375

Company Established: 1988

Distribution Engineering Software Solution

A set of applications for electric utility system analysis and optimization.

Distribution Engineering Software Solution is a set of applications for electric distribution utilities for planning, design and operations. Applications include load flow, short circuit, configuration and loss optimization, capacitor placement optimization and others. Load representation is comprehensive and models hour by hour changes. "What-if" analysis are used to identify critical contingencies. MapInfo provides the geographical database used to display circuit routing. Analysis results are displayed on maps, tables, and graphs. The applications are suitable for utilities of any size and are capable of modeling complete systems.

Data from GIS displays can be down-loaded to provide the basis for power-circuit routing.

Price: Call for quote

Release Date: 5/93

MapInfo Platform: Windows

Development Languages Used: MapBasic, FORTRAN, C

Runtime Version: Yes

Support: Yes

Contact: Gordon Dromey
DROMEY DESIGN, INC.
102 Riverview Blvd.
St. Catharines, Ontario Canada L2T 3M2

Company Established: 1984

DLG2MBI

A utility to convert DLG files to MapInfo files.

DLG2MBI is a program that converts DLG optional format files into either MapInfo's MBI or MMI formats for importation into MapInfo. Over 300 defined coordinate systems are provided. User is able to convert optional format file DLG data by using major and/or minor attribute codes. An optional related program allows direct conversion to AutoCAD DWG format as well.

Price: $750

Release Date: 1990

MapInfo Platform: DOS

Development Languages Used: Clipper, C

Runtime Version: Not applicable

Support: Yes

Contact: Marsha Moore
ON-LINE DATA PRODUCTS
5909 E. Waltann
Scottsdale, AZ 85254
602-494-9211

Company Established: 1988

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Authorized Developer

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Echo Human Service Client Information System

A turnkey application that supports a variety of human service organizations for monitoring of case management.

The Echo Human Service Information package supports a wide variety of human service organizations including mental health, mental retardation, elderly service, child welfare, health, rehabilitation and others, giving all such agencies the monitoring abilities they require. For example, monitoring progress on cases and activities designed and monitored by staff. This software will automate statistical reporting, service plan monitoring, staff productivity, tracking of de-institutionalized clients (on a local or statewide basis), client progress monitoring, etc. It will integrate with Echo's Accounting Series and MapInfo.

Price: Call for proposal

Release Date: Fall 1989

MapInfo Platform: DOS

Development Languages Used: Clipper

Runtime Version: No

Support: Yes

Contact: Joe Braga
ECHO CONSULTING SERVICES, INC.
Main St.
Center Conway, NH 03813
800-635-8209

Company Established: 1980

Enhanced Geocoder

Provides enhanced geocoding tools to simplify matching and correct street file errors.

Enhanced Geocoder provides a consistent set of utilities for improving and speeding up the address matching process. For each address being geocoded, the street file is searched for close matches. In addition to an alphabetic listing, close matches are displayed based on common character strings - similar to a spell checker. An option to view maps of street locations is available at any point during the geocoding process. For incorrect address ranges, a map of all street segments is displayed and allows the user to correct address ranges or street names during the geocoding process. Enhanced Geocoder works on both native StreetInfo files and on copies made from selections.

Price: $245

Release Date: 12/92

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Brian Skruch
BRS SOFTWARE
1846 Rosemeade Pkwy, Suite 296
Carrollton, TX 75007
214-394-9233 FAX: 214-437-2479

Company Established: 1989

Environmental Review Information (ERI)

This application helps automate the federal environmental review program.

ERI:
- comes with a map file or works with user's file.
- automatically measures noise corridor distance info (rail roads and highways).
- conducts a radius search of hazardous waste sites and prints full report.
- automatically reports distance to historical sites
- reports flood plain status.
- provides statutory environmental review checklist on screen for completion and sends to printer.

Price: $395

Release Date: 12/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: David Semo, Dan Jardine, or April Davis
GEO DEMOGRAPHICS, LTD.
69 Arch Street
Johnson City, NY 13790
607-729-5220

Company Established: 1984

ExpertSITE, ExpertBASE, and ExpertEDGE

These integrated applications are used in database marketing.

EDMS has developed these tools to identify the trading areas of any retail location such as a grocery store or bank branch and to profile, screen and select a mailing list of customers or prospects from within the selected area(s). Each of the modules addresses a particular marketing need: ExpertSITE provides access to 1990 Census data, ExpertBASE manages customer data and ExpertEDGE presents a picture of the total market including share of market for any combination of market segment or geography.

A wide range of demographic or lifestyle attributes can be provided at the individual household level for use as a screen in preparing a mailing or telemarketing list.

Price: Call for quote

Release Date: 12/92

MapInfo Platform: Windows

Development Languages Used: MapBasic, C, Visual Basic

Runtime Version: Yes

Support: Yes

Contact: David Deeter
EXPERT DATABASE MARKETING SYSTEMS, INC.
15707 Rockfield Boulevard
Irvine, CA 92718
714-768-5775 FAX: 714-768-3623

Company Established: 1987

EXTRACT

A tool to allow users to copy existing map segments to a new mapfile.

With EXTRACT, a user can select mapfile segments and copy them to a second mapfile. For example, a user can create a custom map that includes only the key routes to his business.

EXTRACT asks a user to select a street segment to copy. As an option, EXTRACT will then automatically copy the selected segment and all others with the same street name. When the user selects a segment to copy, the name and style can be changed in the copied segment of the second mapfile.

Typical uses of EXTRACT include creating a subset of a map for the planning of new cables, fire hydrant location, and printing routes.

Price: $195

Release Date: 9/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Ming H. Louie
ATLAS DATA SYSTEMS
730 Boston Post Road
Sudbury, MA 01776
508-443-4877 FAX: 508-443-4627

Company Established: 1990

Fast Addresser

An application to label an entire street quickly.

Fast Addresser allows a user to address an entire street, within seconds. By simply pointing to each segment to be addressed in ascending (or descending) address order, the user enters the beginning and ending address numbers for the street. The user also indicates the side of the street which has odd address numbers. Fast Addresser will take over to do all the editing and distribute the address ranges based upon linear distance along the street.

Price: $995

Release Date: 8/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Todd Radulski
DMSC, INC.
2923 Lowery Drive
Oviedo, FL 32765
407-365-5611 FAX: 407-365-1145

Company Established: 1985

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Fast Edit of Unnamed Streets and Water

An application to automatically edit unnamed streets, water and named streets and water.

KSI has combined the power of MapInfo with a MapCode application which saves time for automatic editing of entire streets or water. In addition, named streets and water can be modified over the entire street (water) length rather than segment-by-segment.

Price: $795

Release Date: 10/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Lionel Kattner
KSI SYSTEMS COMPANY
7115 Lupton Drive
Dallas, TX 75225
214-361-4610 FAX: 214-361-4610

Company Established: 1985

FiberMap

A schematic capture tool for cable/fiber layout.

FiberMap allows the user to layout cables, amplifiers, taps, splitters, etc. in the schematic window. You can connect fibers and fiber bundles by color and then transfer the layout to MapInfo. A selection of a fiber or connecting gadget in either the schematic window or MapInfo window shows the selection in the other window. A fiber bundle/fiber pair can be selected, then traced back showing the fiber and fiber bundle color at each stage.

- May be used as stand-alone or integrated into existing packages through database links (custom)
- Available as an executable, as Smalltalk source code, or as a custom solution

Price: Call for quote

Release Date: 2/93

MapInfo Platform: Windows

Development Languages Used: Smalltalk, MapBasic

Runtime Version: Yes, depending on customer needs

Support: Yes, as well as custom modifications

Contact: Gary Overgard
DATATRENDS
6575 South Ogden Street
Littleton, CO 80121
303-730-1271 FAX: 303-986-7663

Company Established: 1992

FieldNotes

A Software Developer's Kit (SDK) is available to design custom database forms; GPS interfaces for Magellan and Trimble units are also available.

FieldNotes™ is a Geographical Information Systems software package for utility companies, government agencies, and industrial facilities, supporting applications in AM/FM, CAD, and Mapping. Fieldnotes is designed for mobile users using pen-based and laptop computers who work with data downloaded from a central database. It supports vector, raster, and standard database files in a variety of common formats (DXF, PCX, TIFF, DBF, ASCII). Users can change their copy of the data while in the field, yet supervisors can control when and how the changes are made centrally. FieldNotes provides extensive drawing tools, pen-specific support and user customization of the menu.

FiledNotes provides two important capabilities for MapInfo users. The first is the ability to design custom forms for database files and interface a common layout to either FieldNotes or MapInfo. The second capability allows MapInfo users to easily and efficiently update their maps in the field.

Price: $895

Release Date: 4/92 for version 1.0, 3/93 for version 2.0

MapInfo Platform: Windows

Development Languages Used: VisualBasic, C++, Pen Apps

Runtime Version: No

Support: Yes

Contact: Samuel J. Lanahan
PENMETRICS, INC.
225 SW Madison
Corvallis, OR 97339
800-537-3322 FAX: 503-752-2027

Company Established: 1991

FIRE Fox™

A management system for fire records.

FIRE Fox is a comprehensive records management system used to log and track operational and management information. Principal subsystems include:

- personnel records including payroll, employment history and EEO
- OSHA exposure and injury
- training and certification
- equipment and apparatus management
- house inventory
- supplies and storeroom
- maintenance records
- incident reporting
- CFIRS/NFIRS
- water rescue
- EMS
- first responder
- hazmat
- inspections and pre-plans
- target hazards
- California (Sweeps)
- Inspection history file

Price: Call for quote

Release Date: 1/91

MapInfo Platform: DOS, Macintosh

Development Languages Used: MapCode, FoxBase, FoxPro

Runtime Version: Yes

Support: Yes

Contact: Robert Diggles
ANALYSIS AND PLANNING SERVICES, INC.
1508 Willow Lawn Drive, Suite 215
Richmond, VA 23230
804-282-0053 FAX: 804-282-0080

Company Established: 1980

Fire Location/Hazardous Materials Information

Provides directions to location of a fire along with pertinent hazard materials information.

The application enables fire company, police department, or other emergency management personnel to access information regarding fire or hazardous material incidents.

For an entered address, the application provides printed and menu-driven screen displays of textual directions to the incident site (from multiple dispatch locations if needed). Similarly, additional information pertinent to the particular address can also be output. The MapBasic application provides printed and screen access to information regarding hazardous materials located at the address.

A map of the area surrounding the incident site is printed and displayed on the screen. This map shows the location of the incident, labeled streets, fire hydrants, railroads, and waterways.

While a runtime version can be provided, emphasis is placed on customizing the application and providing the users with the ability to update and maintain their specialized databases.

Price: Varies with installation

Release Date: 6/92

MapInfo Platform: Sun, Windows

Development Languages Used: MapBasic

Runtime Version: As appropriate

Support: Yes

Contact: Roland Rogers
COMSIS CORP.
2275 Swallow Hill Road, Building 500
Pittsburgh, PA 15220
412-279-9110 FAX: 412-279-9114

Company Established: 1969

FireCommand System

Real time management of personnel and equipment on-scene.

Extends the capabilities of MDC's FireMap with multiple displays that permit real-time management of personnel and equipment on-scene. The COMMAND display shows the division locations of all companies. As companies are deployed and reassigned, their locations are immediately viewable. A maximum allowed time is assignable for each division; when a company's time exceeds its maximum, a system alert is displayed and an audio alarm sounds. The PERSONNEL ACCOUNTABLITY display shows each company's time of placement, elapsed time, and time-to-go at its present assignment. The LOCATION display shows a complete map of the scene, and permits sketching and labeling of features and placement of icons on the map. WORKSHEET and CHECKLIST displays assist in incident documentation and management. For later reply, a Transaction Log records every action taken during the incident. An Automatic Vehicle Location option is also available. Requires FireMap System.

Price: $2,950

Release Date: 1992

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Bill Lowery
MOBILE DATA COMMUNICATIONS
10850 North 24th Avenue, Suite 101
Phoenix, AZ 85029
602-678-3788 FAX: 602-678-4471

Company Established: 1989

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678-4471

FireMap System

In-vehicle mapping and information display for fire apparatus.

FireMap System is for fire department applications. It replaces the manual system of maps and run books with a system that does not require the user to be computer literate. FireMap System can function with Computer Aided Dispatch systems. On either radio or manual dispatch, it places a street map with the destination location at the center of the screen. A single key-press zooms the street map in or out to show various layers of detail and points of interest. The system displays building floor-plans, apartment building plans, trailer park layouts and other important map information. Hydrants, utilities shutoffs, sprinkler hookups, hazardous material locations and essential points of concern are identified. Text information about specific points can be viewed with a single key-press. Displayed information can include transitory data, such as street and hydrant closures and temporary safety hazards. An Automatic Vehicle Location option is also available.

Price: $1,495

Release Date: 1991

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Bill Lowery
MOBILE DATA COMMUNICATIONS
10850 N 24th Ave, Suite 101
Phoenix, AZ 85029
602-678-3788 FAX: 602-678-4471

Company Established: 1989

Flora-Map

A mapping interface with point of sales system for delivery of flowers, gifts, etc.

Flora-Map is written and optimized for local deliveries of flower arrangements, gift items or any other product that is first sold, then delivered.

The Flora-Map is an add-on to the Ultimate Florist System, "The Microflorist." The Microflorist records all delivery information during the sale of the product and passes that information to Flora-map for easy mapping and delivery.

One key locates all recipient addresses, and one key prints them. It's that easy.

Price: $795 (includes one county map)

Release Date: 9/92

MapInfo Platform: DOS Version 5.0.1

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Cyrus Nima
MICROCODE CORP.
12711 NE 114th Street
Kirkland, WA 98033
206-822-4690 FAX: 206-822-6730

Company Established: 1990

FORMz™ (a PLUS™-AWARE Application)

A greatly improved database interface that combines the power of Pioneer's Q&E Editor form/report processing with MapInfo.

Now you can click on any graphic attribute and access data managed with Q&E Editor's powerful form processor and enhanced reporting functions. FORMz provides the hooks that make Q&E work transparently with MapInfo. By using FORMz with Q&E, you have access to over 17 of the most popular databases (from xBase to Client/Server), TRUE-SQL access, ODBC™/ ODAPI™ support, and dynamic reporting functions.

Contact us for more information, and discount pricing information of Q&E Editor. Developer Toolkit is also available late second quarter 1993.

Price: $150 (Q&E not included)

Release Date: Second quarter 1993

MapInfo Platform: Windows

Development Languages Used: MapBasic, VisualBasic, Q&E Editor

Runtime Version: Not applicable

Support: Yes

Contact: Ralph Jannini
CONSULTEK SERVICES
87 Belmont Street, Unit 2
North Andover, MA 01845-2304
508-975-8242 FAX: 508-474-8949

Company Established: 1988

GeoProcess

GeoProcess is a street-level geocoding utility that allows the user to automatically geocode a single database which is multi-county, MSA, state, or national in scope.

The program is designed to interface with AccuMail™ by Group One Software to standardize your database's street addresses prior to geocoding.

Upon completion of automatic geocoding, it provides the operator the ability to interactively geocode all non-geocoded records to their proper county. Finally, the utility provides standard reports of all geoprocessed records.

Price: $495 (not including Accumail™)

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: Not applicable

Support: Yes

Contact: Larry Brophy
GEODEMX CORPORATION
4423 Laurel Club Drive
PO Box 250633
West Bloomfield, MI 48325-0633
313-539-3810 FAX: 313-539-1853

Company Established: 1992

MapInfo
Authorized Developer

GeoUtils

A utility to perform coordinate conversion.

GeoUtils features 30+ routines to convert geographic position to state plane coordinates, perform datum transformations, rotate and translate coordinates, convert files to feet or meters, and create DXF format files. GeoUtils can perform any of the above functions from the keyboard, or on ASCII and DXF file format data sets.

Price: $279

Release Date: 1988

MapInfo Platform: DOS, Windows

Development Languages Used: Turbo Pascal

Runtime Version: No

Support: Yes

Contact: Dwight Bartleson
GEOSOFT
RT 1, Box 46
Athena, OR 97813
503-566-2397

Company Established: 1990

GeoWiz

Designed as a resource for direct marketing companies, GeoWiz works in conjunction with an electronic phone directory containing 70+ million entries (available on CD-ROM) to automatically search your "customer" databases for the names, addresses and phone numbers of their neighbors.

Now you can create "neighborhood" micro-demographic prospect lists in any geographic area independently of commercial listing services. The output may be formatted as printed lists, mailing labels or file (dBASE or ASCII). Directory data is available for the entire US and is updated quarterly.

Price: $995 (includes regional CD-ROM Directory)

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: Larry Brophy
GEODEMX CORPORATION
4423 Laurel Club Drive
PO Box 250633
West Bloomfield, MI 48325-0633
313-539-3810 FAX: 313-539-1853

Company Established: 1992

MapInfo
Authorized Developer

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MapInfo
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G.I.S. Application Software (Macintosh)

A desktop Geographic Information System that includes both applications and mapping.

MapPower's Desktop G.I.S. consists of two components — the Application Software and Mapping system. The Application Software contains over 50 applications (biota, building inventory, capital improvement projects, development sites, ground water sampling, health tracking, land use codes, real property tax parcels, solid waste collection, and others) that have already been developed. The applications are already automated. If the application requires further refinement, MapPower will deliver the solution at no additional cost.

Price: MapPower Application Software: $6250 (multiple copy discounts available; price does not include MapInfo for Macintosh.)

Release Date: 6/90

MapInfo Platform: Macintosh

Development Languages Used: 4th Dimension, C

Runtime Version: No

Support: Yes

Contact: Victor Siegle
MAPPOWER CORPORATION
17 Main St., Suite 313
Cortland, NY 13045
607-756-4150 FAX: 607-756-5550

Company Established: 1989

MapInfo
Authorized Developer

The GPS Map Connection

Data analysis and mapping presentation is interrelated to GPS (Global Positioning Satellite) technology in real time and/or batch data processing (after the fact).

The GPS Map Connection interrelates the use of GPS technology which can be used in fixed locations and moving vehicles and equipment .

This information can be stored or transmitted in the following formats:

- For after the fact data batch processing and subsequent map presentation and data analysis.
- For real time information data-transmission back to a base and displayed on maps and other data media to assist in the current decision process.
- For on-the-move equipment and application adjustment due to GPS current readings of longitude and latitude.

Examples of current applications using modifications adapted to their particular requirements:

- Farm equipment and fertilizer and insecticide applications
- Service and repair vehicles for financial institutions
- Soil analysis and scouting farm analysis
- Police departments
- Newspaper delivery
- Utilities companies

Price: Call for quote

Release Date: 9/92

MapInfo Platform: All MapInfo platforms

Development Languages Used: Dependent upon platform and customer's requirements

Runtime Version: Yes

Support: Yes

Contact: Ron Carlson
PAINTED INFORMATION SYSTEMS, INC.
317 West Fourth Street
Davenport, IA 52801
319-323-MAPS FAX: 319-322-8426

Company Established: 1989

GRATICUL

GRATICUL is a lat/long map file which may be used as a map layer within MapInfo.

GRATICUL shows lat/long lines in degrees, minutes and seconds. It covers the whole U.S.

Price: $50

Release Date: 11/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Ming H. Louie
ATLAS DATA SYSTEMS
730 Boston Post Road
Sudbury, MA 01776
508-443-4877 FAX: 508-443-4627

Company Established: 1990

MapInfo
Authorized Developer

Grid Maker

Produces rectangular grids over a specified area. Grids are actual regions and their sizes are adjustable.

This MapInfo accessory will produce rectangular grids within a specified area. The grids are actual regions and the size is specified by the user.

A new table is created with the grid and since the grids are regions, they may be shaded.

Price: $295

Release Date: 11/92

MapInfo Platform: Windows, Macintosh, UNIX

Development Languages Used: MapBasic

Runtime Version: Not applicable

Support: Yes

Contact: Alex P. Machinis
ELASTIS CONSULTING OF CHICAGO
PO Box 1605
Des Plaines, IL 60017-1605
708-299-6952 FAX: 708-299-6990

Company Established: 1990

MapInfo®
Authorized Developer

GridFinder

GridFinder allows MapInfo to find map locations within widely-used printed atlases, such as those published by the Alexandria Drafting Company, of Alexandria, Virginia (ADC).

GridFinder converts latitude and longitude coordinates (or any other projection supported by MapInfo) to their page numbers, rows, and columns within printed street map atlases. For example, the Baltimore Metropolitan Council is located at latitude 39.296400° N, longitude 76.619712° W, placing it in grid A12 on page 35 of the Alexandria Drafting company's "Baltimore and Baltimore County, MD" street atlas.

GridFinder is already in use in taxi dispatching, police dispatching, and real estate applications, and is appropriate anywhere people need to be guided to street locations.

Price: Call for details

Release Date: 3/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: Not applicable

Support: Yes

Contact: Spencer Simpson or Wes Westerfeld
BALTIMORE METROPOLITAN COUNCIL
601 North Howard Street
Baltimore, MD 21201-4585
410-333-1750 FAX: 410-659-1260

Company Established: 1963

MapInfo®
Authorized Developer

GUESTMAP

An application that computes and prints one page directional map(s) from starting point (hotel, etc.) to a requested destination (restaurant, etc.).

GUESTMAP is designed to answer hotel/motel/car rental customers' and guests' direction and information requests. By simply entering a guest's request, for example, "Where is the nearest Mexican restaurant?" or "How do I get to ABC Hospital?", a custom map is printed with their name and directions to their destination.

GUESTMAP can include databases of restaurants, museums, hospitals, golf courses, etc. generated by ACS, or the user can create their own databases.

GUESTMAP can be produced in the following modes:

- Specific Address - a map can be generated by entering an address of any physical location, even one not included in the databases provided.
- Closest - a map can be generated by requesting the closest hospital, theater, etc. found in the ACS provided databases.
- Name - a map can be generated by requesting the name of a specific hospital, theater, etc. found in the ACS provided databases.

Price: Call for quote

Release Date: 7/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Richard Franks
AMERICAN COMPUTER SERVICES, INC.
6860 East Orangethorpe Avenue, Suite C
Buena Park, CA 90620
714-521-1023 FAX: 714-521-0312

Company Established: 1970

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Healthcare Marketing Information System

A unique and powerful new tool for Market Analysts and Sales Managers in the healthcare industry to increase marketing effectiveness and sales volume.

The Healthcare Marketing Information System is an easy-to-use, expandable system that performs geographic and market segment analysis of hospitals, labs, physicians, and dentists. It graphically displays the interrelationships between an organization's sales and marketing territories and detailed healthcare provider data. Detailed information on current and prospective clients can be viewed by a simple click of the mouse, or by powerful SQL queries. Data from a company's existing systems are combined with extensive data on healthcare providers and population demographics to provide valuable new insight into the user's marketplace. Built to order functions can be included with the system to meet a wide range of needs.

Price: Call for quote

Release Date: 9/92

MapInfo Platform: Windows 2.0, Macintosh 2.0

Development Languages Used: MapBasic, FoxPro, VisualBasic

Runtime Version: Yes

Support: Yes

Contact: Duncan Champney
CHAMPNEY ASSOCIATES
2259 Hunter's Run Drive
Reston, VA 22091-2833
703-264-0440

Company Established: 1991

HighPerMap

Produces location maps for real estate appraisals.

Works only with HighPerForm appraisal package. Requires laser printing.

Price: $200

Release Date: 2/92

MapInfo Platform: DOS

Development Languages Used: C

Runtime Version: Yes

Support: Yes

Contact: Max Short
UNITED SYSTEMS SOFTWARE CORPORATION
955 East Javelin Avenue, No 106
Mesa, AZ 85204
602-892-7974 FAX: 602-892-9877

Company Established: 1982

HMDA and CRA Compliance

A compliance service for regulated financial services institutions. (HMDA = Home Mortgage Disclosure Act; CRA = Community Reinvestment Act.)

The Home Mortgage Act and The Community Reinvestment Act of 1977 were passed by Congress to encourage regulated financial institutions to meet the credit needs of the local communities in which they are chartered to do business.

To comply with the stringent reporting requirements on depository institutions, GIS Corporation offers a valuable compliance service. GIS Corporation can map deposits and loans of a financial institution by census tract, ZIP Code, county or state boundaries. Once mapped, statistical reports are generated to show aggregate lending patterns for various categories of census tract, grouped according to location, age of housing stocks, income level and racial characteristics.

Price: Call for quote

Release Date: 1/91

MapInfo Platform: DOS

Development Languages Used: MapCode, Clipper

Runtime Version: Not applicable

Support: Yes

Contact: Said Khosrowshahi
GIS CORPORATION
8000 Towers Crescent Drive
Suite 820
Vienna, VA 22182
703-761-6140

Company Established: 1989

The HMDA/CRA Complete Compliance Solution

The complete solution to HMDA and CRA compliance is available from the beginning to the end: LAR's data accumulation, 100% perfect HMDA governmental electronic submission, mapping and data analysis, total CRA compliance.

The totally integrated package or separate modules may be provided to cover the following HMDA/CRA and management analysis areas:

- The Loan Application Register
- Tracking and reporting
- Extraction programs for mainframes and other LAR's packages
- Data conversion
- HMDA 100% perfect electronic governmental submission
- CRA mapping and data analysis compliance

Some of the systems supported are as follows:

- Mortgageware by Interlink Software
- HMDA-90 by RATA Associates
- RLPC by CPI
- Mortgagflex
- Dynatec
- Gallagher
- Systeme
- Bankers Systems, Inc.

Price: Call for quote

Release Date: 10/92

MapInfo Platform: All MapInfo platforms

Development Languages Used: Dependent upon platform and customer's requirements

Runtime Version: Yes

Support: Yes

Contact: Ron Carlson
PAINTED INFORMATION SYSTEMS, INC.
317 West Fourth Street
Davenport, IA 52801
319-323-MAPS FAX: 319-322-8426

Company Established: 1989

ImageTrace

ImageTrace solves the problem of creating and customizing maps for users of MapInfo for Windows. By tracing scanned images of maps and photos, the user can create maps to be used with MapInfo.

With ImageTrace you can

- Create new maps based on existing maps or photos.
- Combine maps and photos of different scales and projections.
- Add new features to purchased or existing maps or photos.
- Improve the accuracy of your maps.

ImageTrace operates as a utility within MapInfo. You can use all of MapInfo's features while creating custom maps. Features specific to ImageTrace include:

- Tracing with mouse or trackball.
- Support for black and white, gray-scale, and color images in the common formats - BMP, PCX, GIF, TIFF, and TARGA.
- Ability to trace points, lines, polylines, and polygons directly into MapInfo - no import necessary.
- Ability to handle images with any orientation - no rotation or rescanning required.
- Ability to combine images with different projections and scales; for example, aerial photos and USGS quad maps.

Price: $800

Release Date: 12/92

MapInfo Platform: Windows

Development Languages Used: MapBasic, VisualBasic

Runtime Version: No

Support: Yes

Developer Contact:
Eric Pierson
Global Media Systems
730 Boston Post Road
Sudbury, MA 01776
508-443-4410
FAX: 215-566-5175

Company Established: 1992

Distributor Contact:
Nick Salla
Veritech
32 Carriage Drive
Media, PA 19063
215-566-7122
FAX: 508-443-4642

Company Established: 1973

MapInfo

IMAP (Inventory Mapping and Planning)

IMAP allows you to have a visual representation of inventory.

IMAP will link generically to inventory packages that contain reference to a physical inventory/location, such as cemetery and mortuary inventory systems, hotel applications, nursery and grower applications, etc.

IMAP provides 3-D simulated capabilities and can handle 3-D inventory applications. IMAP is image-enabled as true-to-life pictures that can be geocoded to an object. IMAP provides a vast array of benefits in working with inventory.

For specialty applications and information, please call.

Price: Call for quote

Release Date: 12/92

MapInfo Platform: Windows

Development Languages Used: MapBasic, VisualBasic

Runtime Version: Yes

Support: Yes

Contact: Domie Quintana
SUPERIOR INTEGRATIONS
27788 Cannon Drive
Sun City, CA 92585
909-672-1878

Company Established: 1992

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IMCIS® for Field Service

Real-time vehicle location with IMCIS field service resource management system.

Real-time vehicle, customer, plant location module for use with field service applications. Used with scheduling, dispatching, communications and inventory management modules. Based upon artificial intelligence techniques to optimize schedules and perform best-choice real-time dispatching. Systems provided for small to large companies on a variety of hardware platforms.

Price: Call for quote

Release Date: 11/92, Version 3.0

MapInfo Platform: DOS, Windows, Sun

Development Languages Used: MapCode, RealTime MapInfo

Runtime Version: Yes

Support: Yes

Contact: Richard A. Johnson
UBIQUINET, INC.
319 Diablo Road, Suite 200
Danville, CA 94526
510-820-1510 FAX: 510-831-4994

Company Established: 1989

Impact-Link

Impact-Link adds mapping capabilities to police management software.

Impact-Link adds visual mapping capabilities to Admit Computer Service's municipal management software (Impact). Impact-Link creates a seamless link between Impact's police management module and MapInfo. This link allows police to easily construct maps for analysis, by displaying things such as accident sites and burglary locations. To display a map, all the user needs to do is answer a few simple questions within Impact. Impact will then send to MapInfo the information necessary to create a map, and the map will automatically be displayed.

A link is also available with Impact's Computer Aided Dispatch module so that once a dispatcher enters an address into Impact, it will simultaneously be passed to MapInfo. The address will then be displayed, either on a separate computer, in another window (if Microsoft Windows is being used), or the user can hot key into MapInfo.

Price: $3,495 (includes one county map)

Release Date: 7/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Curtis Schleimer
MAPPING SOLUTIONS
PO Box 1246
Port Washington, NY 11050
516-767-0572

Company Established: 1989

Installation/Mapping and Geocoding Input

Consulting services specializing in GIS implementation, mapping, data input, and data conversion.

CAD/CAM Services provides consulting on projects requiring installation, map generation, and geocoding. This firm can also take aerial photography, on-site verification, or existing data to assist in producing correct base land use data and zoning maps. All maps are specific and customized for the customer's requirements.

Price: Call for quote

Release Date: Not applicable

MapInfo Platform: DOS, Windows

Development Languages Used: Depends on project

Runtime Version: No

Support: Yes

Contact: Scott Shuppert
CAD/CAM SERVICES
4436 Denver, Suite 102
Plano, TX 75093
214-960-SCAN FAX: 214-596-0742

Company Established: 1989

The Insurance Connection

The complete solution for insurance compliance of nondiscrimination.

Painted Information Sytems provides a complete FoxPro database solution integrated with MapInfo mapping capabilities. Various modules cover other additional areas to provide a one stop and shop solution. Some of these areas are as follows:

- Total accounting package including payroll and 1099s.
- Direct marketing analysis tools and address label marker.
- Productivity of agents and redistricting of agents' territories.
- Integrated documentation of database, maps, floor-plans and visual computerized TV quality pictures of sites and buildings.
- Total analysis of potential sales areas provided by the demographic profile of the 1990 U.S. Census Bureau.

Price: Call for quote

Release Date: 1/93

MapInfo Platform: All MapInfo platforms

Development Languages Used: Dependent upon customer's requirements

Runtime Version: Yes

Support: Yes

Contact: Ron Carlson
PAINTED INFORMATION SYSTEMS, INC.
317 West Fourth Street
Davenport, IA 52801
319-323-MAPS FAX: 319-322-8426

Company Established: 1989

INTERSECT

A utility to create an ASCII file from a mapfile that contains XCOORD, YCOORD, and the intersecting street names.

INTERSECT reads any .MMI file to generate an ASCII file that contains intersecting street names. This file can then be used as a pointfile to display street intersections. This file can be useful in dispatching applications, among others.

Price: $50

Release Date: 5/91

MapInfo Platform: DOS

Development Languages Used: C

Runtime Version: Not applicable

Support: Yes

Contact: Stan Lester
TELEMAP CORP.
327 South Lasalle St, Suite 944
Chicago, IL 60604
312-427-1888

Company Established: 1988

KWIK-START Field Service

A turnkey dispatch and billing package for field service companies.

KWIK-START Field Service is a complete wireless mobile data package for small to mid-size urban delivery fleets. It delivers complete dispatching, text messaging, billing and inventory control capabilities between a base station and a fleet of vehicles, providing users with a simple, yet effective, wireless mobile data system.

The package features hand-held computer terminals, base station personal computer. modems, radios, cables and connectors and application software.

The KWIK-START Field Service application software supports vehicle dispatching, text messaging, billing and inventory control. Message and status acknowledgment are also supported.

Price: Call for quote

Release Date: 11/92

MapInfo Platform: DOS

Development Languages Used: Not applicable

Runtime Version: No

Support: Yes

Contact: Robert Berlin
CODED COMMUNICATION
2375 Camino Vida Roble
Carlsbad, CA 92009
619-431-0077 FAX: 619-431-1371

Company Established: 1971

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KWIK-START Urban Delivery

A turnkey dispatch and status reporting package for companies who provide urban delivery.

KWIK-START Urban Delivery is a complete wireless mobile data package for small to mid-size urban delivery fleets. It delivers complete two-way text messaging capabilities between a base station and a fleet of vehicles, providing users with a simple, yet effective, wireless mobile data system.

The package features mobile data terminals, base station personal computer, modems, radios, cables and connectors and application software.

The KWIK-START Urban Delivery application software supports both free-form, two-way messaging and "canned" dispatch forms. Package pick-ups and deliveries can be assigned and tracked to a particular driver or vehicle. Message acknowledgment is also supported.

Price: starts at $4,995

Release Date: 6/92

MapInfo Platform: DOS

Development Languages Used: Not applicable

Runtime Version: No

Support: Yes

Contact: Robert Berlin
CODED COMMUNICATION
2375 Camino Vida Roble
Carlsbad, CA 92009
619-431-0077 FAX: 619-431-1371

Company Established: 1971

LANDUSE

LANDUSE models site development options and impacts.

Custom versions incorporate zoning ordinances, municipal budgets, available cost studies and assessors records. Together, these can provide a level of planning and investment-decision support previously available only at far greater cost.

Users can specify one or more parcels for development, determine the potential build-out value of the site and make "what-if" changes in zoning. Each iteration generates net impacts for traffic, water consumption, waste generation, education and other public services.

LANDUSE has defined baseline conditions and development options in a broad range of urban fiscal studies, comprehensive rezoning projects, housing studies and site selection tasks. As part of a comprehensive geographic information system, it allows continuous updating of capital investment and service delivery strategies.

Demo disk available for $10 postpaid in North America, $18 elsewhere.

Price: $2,400 and up, depending on custom requirements

Release Date: MapCode version 1/93; MapBasic version 3/93

MapInfo Platform: Windows, DOS

Development Languages Used: MapBasic, MapCode

Runtime Version: Yes

Support: Yes

Contact: John Connery
GEODATA ANALYTICS, INC.
19 Parker Street
Melrose, MA 02176
617-665-8130 FAX: 617-665-5864

Company Established: 1991

LAYERS

A utility to display a complete list of current layers.

LAYERS allows the user to display a complete list of current layers within MapInfo. Layers can then be added, removed, and created. Attributes can be changed, also.

LAYERS displays a brief list showing each layer's name and type. Alternatively, a user can request a more detailed list that includes layer attributes and active zoom ranges. For example, the detailed list indicates whether editing is allowed for each layer.

Price: $50

Release Date: 5/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Ming H. Louie
ATLAS DATA SYSTEMS
730 Boston Post Rd.
Sudbury, MA 01776
508-443-4877 FAX: 508-443-4627

Company Established: 1990

LAYERz™ (a PLUS™-AWARE Application)

A free-floating layer manager that provides the user with quick access to all layer attributes, as well as other functions.

The user can now access all the layers in a mapper quickly and intuitively. Features include:

- CLONE - easily duplicate any mapper
- LEGEND - the ability to see each layer's graphic attribute
- MERGE - puts all selected layers into a single layer.

Truly a time saver for any heavy MapInfo user. A Developer Toolkit is also available. Call or FAX for more information.

Price: $85 ($175 with PLUS/User)

Release Date: Second quarter 1993

MapInfo Platform: Windows

Development Languages Used: MapBasic, VisualBasic, and C

Runtime Version: Not applicable

Support: Yes

Contact: Ralph Jannini
CONSULTEK SERVICES
87 Belmont Street, Unit 2
North Andover, MA 01845-2304
508-975-8242 FAX: 508-474-8949

Company Established: 1988

MapInfo Authorized Developer

LoadPlanner/Hiway

Provides automatic long haul city to city load building, routing and scheduling that considers multiple vehicles, customer dock and pickup or delivery schedules.

LoadPlanner/Hiway is a vehicle routing and scheduling system that provides automatic routing and scheduling of multiple vehicles for inbound pickups or outbound deliveries between city to city locations. After locating each customer by city or postal zone code, it determines optimal routes and vehicle loading based on vehicle weight and volume constraints, customer time windows, unloading times, and total available time to complete each trip. Optionally, driving directions may be produced along with driver manifests and loading/pickup reports. The road network automatically considers unique requirements (adjust speed limits, set up special road restrictions, update one way information, provide routing around for low or weight restricted bridges, prohibit roads from being used, etc.) The system will work with any international road network, as well as the one provided for North America.

Price: Call for quote

MapInfo Platform: Windows

Development Languages Used: MapBasic, Microsoft C

Runtime Version: Yes

Support: Yes

Contact: David Ross
ROTEC
191 Albany Turnpike, Box 529
Canton, CT 06109
203-693-0257 FAX: 203-693-8091

Company Established: 1991

MapInfo Authorized Developer

LoadPlanner/Local

Provides automatic localized street address to street address load building, routing, and scheduling that considers multiple vehicles, customer dock and pickup or delivery schedules.

LoadPlanner/Local is an automatic vehicle routing and scheduling system that provides automatic routing and scheduling of multiple vehicles for inbound pickups or outbound deliveries between local street addresses. After locating each customer, right down to individual street address levels, it determines optimal routes and vehicle loading based on vehicle weight and volume constraints, customer time windows, unloading times, and total available time to complete each trip. LoadPlanner/Local uses an actual road network database, such as MapInfo's StreetInfo Version 2.0. Optionally, driving directions may be produced along with driver manifests and loading/pickup reports. The road network automatically considers unique requirements (adjust speed limits, set up special road restrictions, update one way information, provide routing around for low or weight restricted bridges, prohibit roads from being used, etc.) The system will work with international road networks, as well as those for North America.

Price: Call for quote

Release Date: 6/92

MapInfo Platform: Windows

Development Languages Used: MapBasic, Microsoft C

Runtime Version: Yes

Support: Yes

Contact: David Ross
ROTEC
191 Albany Turnpike, Box 529
Canton, CT 06109
203-693-0257 FAX: 203-693-8091

Company Established: 1991

MapInfo Authorized Developer

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MairInfo

An application that provides problem solving for local authorities.

This application is a complete modular information system which solves all daily problems for small and medium communities like:

- Urbanism
- Electricity network
- Underground networks
- Water Sewage
- Local daily information handling and maintenance planning

Price: 40KF to 120 KF; call for current U.S. pricing

Release Date: DOS version 6/92; Windows version 4/93

MapInfo Platform: DOS, Windows

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Joël Hutin
METOD SARL
Prologue 2, No 10
Innopole
31312 Labege Cedex France
(33) 61 39 12 92 FAX: (33) 61 39 15 19

Company Established: 1991

Make Polygon

An application to generate enclosed and uncrossed polygons on digitized or vectored map layers.

Make Polygon allows the user to specify input files, the output file, the precision and deviation. The program then approximates coordinates of nodes which are in the area, designed by the deviation. It also splits X, T and L cross-lines and computes coordinates of points according to the user-defined precision. The program makes uncrossed polygons with the obtained nodes. A newly created line and polygons are stored in separate files. Automatic labeling and report files are supported. For example, this utility can make blocks from a street file.

Price: $450

Release Date: 10/92

MapInfo Platform: DOS, Windows

Development Languages Used: C

Runtime Version: No

Support: Yes

Contact:

Blago Simenov
DATAMAP LTD
56 Oak Meadow Blvd.
Scarborough, ON M1E 4G1
Canada
416-287-3240
FAX: 416-287-3476

Christo Assenov
DATAMAP
EUROPE LTD
52 Kniaz Boris I St.
Sofia 1423
Bulgaria
+3592-524-365
FAX: +3592-522-913

Company Established: 1975

MANYMAPS.APP

An application to aid MapInfo users to process extensive .DBF lists of street addresses in multiple counties throughout the U.S.

MANYMAPS.APP provides a streamlined way of processing street maps for the purpose of:

- Geocoding
- Producing Map images in CGM and PCX screen graphic formats
- Producing printed output

MANYMAPS.APP will scan disk drives to locate all MapInfo files. It will then attempt to geocode to street addresses using the county, city and ZIP Code fields in the database. When the address is found, the map will be drawn to a default scale and a CGM file is also created.

MANYMAPS.APP is customizable to meet users' needs.

Price: $4,995

Release Date: 1992

MapInfo Platform: DOS

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Stan Lester
TELEMAP CORPORATION
327 South LaSalle Street, Suite 729
Chicago, IL 60604
312-427-1888 FAX: 312-427-1889

Company Established: 1988

Map Append

Map Append builds larger area maps from smaller ones.

Map Append extends the function of MapInfo's "Append" command to detailed street maps (such as StreetInfo). Map Append lets you append tables that are joined together from other tables. Map Append can build one overall metropolitan map from a series of individual county maps. The resulting maps allow area wide thematic mapping, address matching, and other MapInfo operations from combined map files. Map Append retains the disk storage efficiencies and address-matching capabilities of standard MapInfo street maps.

Price: $195

Release Date: 1/93

MapInfo Platform: Windows, Macintosh, UNIX

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Wes Westerfeld or Spencer Simpson
BALTIMORE METROPOLITAN COUNCIL
601 North Howard Street
Baltimore, Maryland 21201-4585
410-333-1750 FAX: 410-659-1260

Company Established: 1963

MAP-DISPATCH

Through the effective integration of graphic geographic location maps and computer databases, MAP-DISPATCH gives the functionality of a text-based dispatch system plus adding automatic mapping functions.

Emergency Information Services, Inc. has designed MAP-DISPATCH 2.0 to serve the needs of counties and municipalities or businesses that have 1 to 5 dispatch stations. The functionality and reliability concerns of the common dispatcher were integrated into the original design by having dispatch supervisors and dispatchers play a vital role in the design and implementations of actual code and functions.

MAP-DISPATCH requires a 386 or 486 PC with 4MB RAM and a VGA monitor. For proper address location, the StreetInfo map must be prepared properly with correct road names and address ranges. For in-depth treatment of individual address information, a comprehensive database must be provided by the customer.

Emergency Information Services, Inc. has been involved in E-911 addressing and geographic information systems since 1989. For more information about other services or products, please call or write.

Price: Call for quote

Release Date: 4/92

MapInfo Platform: DOS; Windows available in the future

Development Languages Used: C, Desqview, MapCode, FoxPro

Runtime Version: Yes

Support: Yes

Contact: Gary Bullwinkel or Chris Ferguson
EMERGENCY INFORMATION SERVICES, INC.
3387 Poplar Avenue, Suite 329
Memphis, TN 38111
901-458-7800

Company Established: 1989

Map_Extractor

A utility to extract subsets of map features.

Map_Extractor extracts subsets of map features, such as the major highways of an area. The user selects a segment of a street and Map_Extractor locates and highlights all other related segments. The user has the option to edit the name or style of the extracted streets. The user may import the extracted streets into mapfile format using the Import/Export module.

Price: $250

Release Date: 3/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Stephen K. Jones
VISUAL DATA SYSTEMS, INC.
PO Box 831190
Richardson, TX 75083
214-699-6645 FAX: 214-699-6678

Company Established: 1989

MapInfo®
Authorized Developer

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Map-Loan

Map-Loan is a banking package designed to geocode addresses, update data files with Census Tract, MSA, and other information and print results to thematic maps for HMDA and CRA reports.

The package can easily be used for all other purposes a bank might wish to perform with like functions, such as locating depositors, other loan information, marketing information and ATM placement.

Price: $1,500 includes MapInfo DOS version. Some customization and map preparation may be necessary.

Release Date: 12/92

MapInfo Platform: DOS; Windows available in the future

Development Languages Used: MapCode, C

Runtime Version: Yes

Support: Yes

Contact: Gary Bullwinkel or Chris Ferguson
EMERGENCY INFORMATION SERVICES, INC.
3387 Poplar Avenue, Suite 329
Memphis, TN 38111
901-458-7800

Company Established: 1989

MAP-PMS

MAP-PMS displays street segment information for pavement management.

MAP-PMS (PAVEMENT MANAGEMENT SYSTEM) is an application program that displays street segment information contained in a FoxPro program called "PE-PMP" (Pavement Engineers - Pavement Management Program). This application program will display, in a window, the condition of a selected street segment or highlight segments that require a specific type of rehabilitation (patch, overlay, reconstruction). An overlay of the street network that contains a unique name for each street segment with a Project/ Segment number is required to provide the cross-reference to the pavement management program. This application program allows the analyst to plan an agency's work schedule, as well as prepare maps for presentation at public meetings.

Price: call for quote

Release Date: 1/91

MapInfo Platform: DOS

Development Languages Used: MapCode, FoxPro

Runtime Version: Yes

Support: Yes

Contact: Didrik A. Voss
PAVEMENT ENGINEERS
12520 SE 14th Street
Bellevue, WA 98005
206-747-8330 FAX: 206-747-4225

Company Established: 1990

MAPDIG

Raster-images for MapInfo

This program loads an arbitrary number of RASTER IMAGES (map sheets) from a database. The user may then digitize point files, boundary files or street files on top of the images. The stored data may be used as any other MapInfo data. The program may also be used for locating and placing data.

The program allows the user to have several raster images to be put on top of each other. There may be any number of map sheets in the database. The number of layers are limited to four.

Price: Single license is $495, multiple licenses are $990/first + $195/each additional

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Aki PuustJarvi
KARTTAKESKUS (Map Center)
Opastinsilta 12B, PO Box 85
00521 Helsinki
Finland
901545727 FAX: 9495001394

Company Established: 1919

MapFind: Visual Map Library System

A visual catalog and index system for maps & other spatial data.

The Visual Map Library is a menu-controlled system to help manage information about maps or other documents that are spatially-referenced. It lets you easily store and display maps of map-coverage areas. You can also query the system to identify and display all maps or other documents within a radius of a given location within a county (or other geographic area), or within a "lasso" you draw. It includes a database manager that allows more traditional database queries, based, for example, on such data fields as the date the information was prepared, the map scale, the data source, or where the physical data or document was stored.

With the Visual Map Library, map librarians, public works agencies, civil engineering firms, utilities, planners, and others can quickly answer questions such as:

- What maps do we have for the area near the "Skylark Meadows" project and where are they filed?
- What is the largest scale map on hand for Georgia and when was it last revised?

Price: $595 to $1,995

Release Date: 11/92

MapInfo Platform: Windows, Macintosh, UNIX

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: John Schlosser
SCHLOSSER GEOGRAPHIC SYSTEMS
720 Third Avenue, Suite 2015
Seattle, WA 98104
206-224-0800 FAX: 206-467-0458

Company Established: 1978

MapImage

MapImage allows the user to associate color images with features on a map. The user selects a feature and the associated image is displayed.

With MapImage you can

- associate images, such as photos, with map features
- rescale and reposition images
- use black and white, gray-scale, and color images in the common formats - BMP, PCX, GIF, TIFF, and TARGA

Price: $250

Release Date: 12/92

MapInfo Platform: Windows

Development Languages Used: MapBasic, VisualBasic

Runtime Version: No

Support: Yes

Developer Contact:
Eric Pierson
Global Media Systems
730 Boston Post Rd
Sudbury, MA 01776
508-443-4410
FAX: 508-443-4642

Company Established: 1992

Distributor Contact:
Nick Salla
Veritech
32 Carriage Dr
Media, PA 19063
215-566-7122
FAX: 215-566-5175

Company Established: 1973

MapMate

MapMate is a utility to convert Census Bureau TIGER files into MapInfo.

With the MapMate Conversion package, you can create custom maps for use with MapInfo. MapMate is a set of utility programs each designed to be easy-to-use and yet flexible enough to allow you to create a wide range of maps. MapMate utilities operate interactively or in a batch mode to produce files for input by MapInfo for DOS Import Utilities.

Price: $895

Release Date: 11/91

MapInfo Platform: DOS, MapInfo Import/Export Utilities

Development Languages Used: C

Runtime Version: No

Support: Yes

Contact: Ming H. Louie
ATLAS DATA SYSTEMS
730 Boston Post Road
Sudbury, MA 01776
508-443-4877 FAX: 508-443-4627

Company Established: 1990

MapInfo® Authorized Developer

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MAPNET™

A multiplex channel network manager.

MAPNET is a powerful new multiplex channel network manager designed to run in the Windows 3.x environment. With it, a user can make multiplex channel assignments from an internal database. You can add new service or redefine existing service using the mapping interface that takes the user all the way down to street level...just point and click!

MAPNET also lets the user easily define and design site connections, base band connections and circuits within the network. Status reports and queries are also easily generated.

Price: Call for quote; varies on network size

Release Date: 2/93

MapInfo Platform: Windows

Development Languages Used: MapBasic, C, C++

Runtime Version: Yes

Support: Yes

Contact: Chuck Collins
NUCOMM DATA, INC.
7515 Wayzata Boulevard, Suite 226
Minneapolis, MN 55426
612-591-0820 FAX: 612-591-7574

Company Established: 1986

MapInfo®
Authorized Developer

MapPort

MapPort works with PCensus-USA for retrieval of census data for user-defined areas (circles or polygons) as reports or thematic maps.

PCensus databases contain complete STF1A or STF3A data for the 1990 Census down to the block group level, providing over 3,000 census variables including age and sex distributions, housing type and cost, poverty status, employment, income, language, race and ancestry.

The PCensus retrieval software allows you to specify any geographical area, including circles or polygons, to produce detailed demographic profiles.

MapPort provides a user-friendly link between PCensus and MapInfo. With MapPort, you can define polygonal or circular study areas by tracing with the mouse on a displayed map; PCensus then searches the specified area and displays or exports the results. MapPort also provides powerful tools for creating thematic point or area maps of PCensus results.

A free PCensus-USA demonstration disk is available on request.

Price: $195

Release Date: 6/92

MapInfo Platform: Windows, DOS

Development Languages Used: MapCode, MapBasic, C++

Runtime Version: No

Support: Toll-free hotline

Contact: Wilson Baker
TETRAD COMPUTER
APPLICATIONS LIMITED
3873 Airport Way, Box 9754
Bellingham, WA 98227-9754
800-663-1334 FAX: 206-734-4005

Company Established: 1968

MapInfo®
Authorized Developer

MapTools: Utilities for MapInfo

A set of add-on tools that enhance MapInfo's built-in functions.

A tool kit of MapInfo utility functions to make life easier for MapInfo GUI users, and includes tools, such as the following:

- Unattended printing of sets of maps
- Splitting one set of polygons (e.g., Zip Codes) by a different set (e.g., Census Tracts).
- Assign region name (e.g., Census block group number) to points (e.g., customers or survey respondents) that are located within the region.

These tools simplify operations that MapInfo can perform, but that currently require manual steps. New tools are being added so please fax your request for an up-to-date list.

Have your own great MapBasic utilities to contribute? Fax a description and qualify for a no-charge set of MapTools. 90 day moneyback satisfaction guarantee.

Price: $95 (or FREE in exchange for your MapBasic Utilities).

Release Date: 3/93

MapInfo Platform: Windows, Macintosh, UNIX

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes, at extra cost

Contact: John Schlosser
SCHLOSSER GEOGRAPHIC SYSTEMS
720 Third Avenue, Suite 2015
Seattle, WA 98104
206-224-0800 FAX: 206-467-0458

Company Established: 1978

MAPUNITS

MAPUNITS provides easy control of map distance and area units.

Users can quickly display current units and select new units from a menu. The utility then updates the MapInfo configuration and adjusts all active zoom values and road widths.

MAPUNITS supports distance units of kilometers, statute miles, meters, feet, and yards. Area units include square kilometers, square miles, square meters, square feet, square yards, hectares, and acres.

MAPUNITS can be used for applications that need to immediately change the display of units from miles to square acres, etc.

Price: $50

Release Date: 9/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Ming H. Louie
ATLAS DATA SYSTEMS
730 Boston Post Rd.
Sudbury, MA 01776
508-443-4877 FAX: 508-443-4627

Company Established: 1990

Market and Site Analysis

This application allows the user to draw a circle from a specific point or site and calculate data based on the area included within the circle.

The user can select a site or point and draw a radius over a map of boundaries such as, census tracts, ZIP Codes, districts, counties, etc. Any demographic or database information associated with each boundary is calculated based on the percent of area of each individual boundary included in the circle.

Price: $995

Release Date: 12/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Lionel Kattner
KSI SYSTEMS COMPANY
7115 Lupton Drive
Dallas, TX 75225
214-361-4610 FAX: 214-361-4610

Company Established: 1985

The Master Scheduler

Public transit planning, scheduling, and run cutting system.

The Master Scheduler™ is a public transit scheduling tool that can run stand-alone, under Novell Netware, or with Microsoft Windows for Work Groups. It allows for unlimited nodes, patterns, and running time breakdowns. Trios can be automatically or manually generated. Blocking may be system-wide, or performed on a route, direction, pattern, or time of day basis. Work rules are user-defined and form the basis for the Run Cutter. MapInfo is used to draw routes that may be integrated into schedule data, allowing for the in-house preparation of pocket timetables.

Requires DOS 5.0, Windows 3.0 or above, MapInfo for Windows 1.1 or above, 386/33 with 4MB RAM as a minimum.

Price: Call for quote

Release Date: 3/92

MapInfo Platform: Windows

Development Languages Used: C

Runtime Version: Yes

Support: Yes

Contact: David Reed
SCHEDULE MASTERS, INC.
7 Coronation Circle
Brampton, ON L6Z 3Z7 Canada
416-840-1122 FAX: 416-742-9331

Company Established: 1991

The Master Scheduler-Paratransit Module

A para-transit reservation and trip scheduling system.

The Paratransit Module of the Master Scheduler allows public transit authorities to book and schedule trips for disabled riders. The system performs the 3/4 mile radius search to any fixed route from the client's pickup address. The client specifies a pickup or drop off time, and the system generates the missing time (with a window) using running times broken down by time of day. Trips are batched for end of day processing and itineraries sent electronically to the depots. The system accepts standing orders and follows other rules established by the ADA. A network version is available.

Requires DOS 5.0, Windows 3.0 or above, MapInfo for Windows 1.1 or above, and 386/33 with 4MB RAM as a minimum.

Price: Please call

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: C

Runtime Version: Yes

Support: Yes

Contact: David Reed
SCHEDULE MASTERS, INC.
7 Coronation Circle
Brampton, ON L6Z 3Z7 Canada
416-840-1122 FAX: 416-742-9331

Company Established: 1991

MATERA

Administrative Database of Hungary

This database contains the digitized map of Hungary in scale 1:500,000. Map information includes the following: country border, county boundaries, areas of the 3096 Administrative Territories, main rivers, lakes, roads and trains. Every Administrative Territory has 10 data groups:

- name
- local government
- population, census
- industry
- trade
- tourism
- housing
- public health
- education, culture
- provision for utilities of settlements

Price: $1,298

Release Date: First quarter 1993

MapInfo Platform: Windows (2.0)

Development Languages Used: Not applicable

Runtime Version: No

Support: Yes, data update provided once a year for $299

Contact: George Falk
LANDINFO LTD
H-1148 Budapest
Fogarasi ut 10-14
Hungary
361-252-3444 ext 197
FAX: 361-183-2025

Company Established: 1991

MB/RoTec

A utility program for MapBasic that removes the software application name from the Windows main title bar and provides Windows Clipboard access to/from MapBasic.

MB/RoTec is a DLL utility program that provides two primary services:

- Allows the application name to be removed from the Windows title bar and be replaced with a name of the user's choosing.
- Provides access to and from the Windows Clipboard to allow the transfer of data in and out of a MapBasic application from other programs that can access the Clipboard.

Price: Call for quote

Release Date: 6/92

MapInfo Platform: Windows

Development Languages Used: MapBasic, Microsoft C

Runtime Version: Yes

Support: Yes

Contact: David Ross
ROTEC
191 Albany Turnpike, Box 529
Canton, CT 06109
203-693-0257 FAX: 203-693-8091

Company Established: 1991

MCD Info

An application to profile the 1990 Census Data for any Minor Civil Division (MCD).

MCD Info allows the user to select any MCD for a state and profile its 1990 Census data. Those data include 1990 STF1a data and will include future releases, including income data. MCD Info allows the user to perform thematic mapping and dot mapping functions through the use of customized menus.

Price: $995

Release Date: 4/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: David Semo, Dan Jardine, or April Davis
GEO DEMOGRAPHICS, LTD.
69 Arch Street
Johnson City, NY 13790
607-729-5220

Company Established: 1984

MIDD (Mapping Integrated Data Display)

An application designed to integrate databases, report analyses, mapping presentations, related visual TV-quality computerized pictures. MIDD integrates database data, report writing, mapping presentation and visual presentations of graphs and TV-like pictures of the subject matter.

Current applications are being used in the following markets:

- Real Estate Offices
- Appraisers Offices
- Financial Institutions
- Leasing Agents
- Property Managers
- Utility Companies

Can be readily adapted to the following functions:

- Police and Fire Departments
- Travel Agencies
- Tourism and Hotel Industries
- Chamber of Commerce
- Disaster and Emergency Analysis and Information Dispersal
- Land Use Mapping and Tax Parcel Analysis (Infrastructure)
- Site Analysis

Price: Call for quote

Release Date: 9/92

MapInfo Platform: All MapInfo platforms

Development Languages Used: Dependent upon platform and customer's requirements

Runtime Version: Yes

Support: Yes

Contact: Ron Carlson
PAINTED INFORMATION SYSTEMS, INC.
317 West Fourth Street
Davenport, IA 52801
319-323-MAPS FAX: 319-322-8426

Company Established: 1989

MLS Appraiser

This tool is designed for residential real estate professionals.

The MLS Appraiser allows for analysis for property valuation, collateral data verification, mortgage risk analysis, demand, and subdivision level trend analysis.

The MLS Appraiser allows for easy and standard retrieval of relevant active, comparable and tax assessment data for a subject property from any Multiple Listing Service in the United States. Based on imported data, valuation, data verification, and evaluation/trend analysis can be performed at any geographical boundary level and reports such as Comparative Market Analysis (CMA) and Uniform Residential Appraisal Report (URAR) created.

The MLS Appraiser requires another product by GIS Corporation, The MLS Visualizer.

Price: call for quote

Release Date: 1/91

MapInfo Platform: DOS

Development Languages Used: MapCode, Clipper, C

Runtime Version: No

Support: Yes

Contact: Said Khosrowshahi
GIS CORPORATION
8000 Towers Crescent Drive
Suite 820
Vienna, VA 22182
703-761-6140

Company Established: 1989

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MLS Reporter

The MLS Reporter is a powerful software product developed by real estate professionals for residential realtors, brokers, and appraisers.

The MLS Reporter provides automatic retrieval capability of comparable, active and tax assessment data from on-line Multiple Listing Services. Once the property information is transferred to the broker's computer, summary, full and Comparative Market Analysis (CMA) reports can be generated.

The MLS Reporter requires other software provided by GIS Corporation.

Price: Call for quote

Release Date: 6/89

MapInfo Platform: DOS

Development Languages Used: MapCode, Clipper, C

Runtime Version: No

Support: Yes

Contact: Said Khosrowshahi
GIS CORPORATION
8000 Towers Crescent Drive
Suite 820
Vienna, VA 22182
703-761-6140

Company Established: 1989

MLS Visualizer

The MLS Visualizer is a solution for commercial and residential realtor/broker offices to connect to Multiple Listing Service (MLS) and transfer listing information for their local offices.

The MLS Visualizer allows broker offices to connect to MLS with their computer and transfer listing information to their local offices. Once the information is transferred to the broker's computer, detailed visual analysis can be performed on the information. Hard copy reports complement all visual presentations.

The MLS Visualizer requires another product by GIS Corporation, The MLS Reporter.

Price: Call for quote

Release Date: 6/89

MapInfo Platform: DOS

Development Languages Used: MapCode, Clipper, C

Runtime Version: No

Support: Yes

Contact: Said Khosrowshahi
GIS CORPORATION
8000 Towers Crescent Drive
Suite 820
Vienna, VA 22182
703-761-6140

Company Established: 1989

MMI2MBI

A utility to convert an MMI file to an MBI format.

MMI2MBI converts sorted MMI (mapfiles) to MBI (boundary files) format. Successive identically named street segments in the MMI file are collected into a single boundary of the same name. A user may specify a default color and fill type for the new boundary file.

Some of the uses of MMI2MBI include:
- Translate mapfile lakes to boundaries to display in solid blue.
- Translate boundary files from other sources.

Price: $495

Release Date: 8/90

MapInfo Platform: DOS

Development Languages Used: MapCode, Clipper, C

Runtime Version: No

Support: Yes

Contact: Todd Radulski
DMSC, INC.
2923 Lowery Drive
Oviedo, FL 32765
407-366-5611 FAX: 407-365-1145

Company Established: 1985

MobileMap System

In-vehicle mapping and information display for law enforcement.

MobileMap replaces the manual system of maps and dispatcher-aided address locating with a system that does not require the user to be computer literate. MobileMap can be integrated with Computer Aided Dispatch systems. Using either radio or manual dispatch, MobileMap places a street map with the destination location at the center of the screen. A single key-press zooms the street map in or out to show various layers of detail and points of interest. The system can display building floor-plans, apartment building plans, trailer park layouts and other important map information. Arrest locations and important "hot spots" can also be displayed. Text information about specific points can be viewed with a single key-press. Displayed information can include transitory data, such as street closures and temporary safety hazards. An Automatic Vehicle Location option is also available.

Price: $1,495

Release Date: 1992

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Bill Lowery
MOBILE DATA COMMUNICATIONS
10850 North 24th Ave, Suite 101
Phoenix, AZ 85029
602-678-3788 FAX: 602-678-4471

Company Established: 1989

MUCH

An application that aids planners in performing a variety of daily functions.

The Monitoring Urban Change and Housing (MUCH) software package offers planner assistance in the following tasks:

- Housing condition assessment on Census block, block-group and tract levels (local tax assessors' database required.
- Zone aggregation of both spatial and selected 1990 data on either the Census block-group or tract level.
- Basic analyses of selected demographic data from 1980 to 1990.
- Population estimation.
- Population forecasting.

Price: Call for quote

Release Date: 6/92

MapInfo Platform: DOS(5.0)

Development Languages Used: dBASE related software

Runtime Version: Yes

Support: Yes

Contact: David Semo, Dan Jardine, or April Davis
GEO DEMOGRAPHICS, LTD.
69 Arch Street
Johnson City, NY 13790
607-729-5220

Company Established: 1984

Multi-GRIDS

An application that allows the creation of grids as boundaries.

Multi-GRIDS allows a user to create grids as boundaries rather than images. This program automates the creation process. The user has options to draw grids from crosshairs or from a boundary and by number of rows or columns or by distance. Boundaries that are created may be square or rectangular. One complete boundary is created for each grid loop. After a grid is created, the user has an option to create subgrids for further definition. Multi-GRIDS also provides menu options to output a current screen and options to output a selected grid ascertained by user point-and-click.

Price: Call for quote

Release Date: 12/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Anthony Campbell
ATG INCORPORATED
205 Regency Executive Park
Charlotte, NC 28217
704-521-8113 FAX: 704-521-9711

Company Established: 1988

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Newspaper Preprint Information System

Visually select and customize pre-print distribution zones.

The Newspaper PrePrint Information System lets newspaper staff, advertisers, or others define custom newspaper insert ("Preprint") distribution zones by selecting Zip Codes, carrier routes, or other boundaries displayed on a map. Custom distribution zones can also be defined (and saved) by drawing interactively on the computer map. The system can work with a newspaper's existing computer system, creating a map-based "front end." The system can also incorporate and map demographic information to allow more precise targeting of pre-print programs.

With the PrePrint Information System, advertisers and media staff and others can answer questions such as:

- What Zip Codes or carrier routes surround each advertiser's stores?
- How many insert (Pre-print) copies will I need to print if I distribute to all paid subscribers within 5 miles of the new shopping center?
- How many more copies will be needed if both subscribers and non-subscribers receive the pre-print?
- Which paper carrier routes are in areas having households with high educational attainment and young children?

Price: Call for quote; typically $5,000 and up.

Release Date: 3/93

MapInfo Platform: Windows, Macintosh, UNIX

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: John Schlosser
SCHLOSSER GEOGRAPHIC SYSTEMS
720 Third Avenue, Suite 2015
Seattle, WA 98104
206-224-0800 FAX: 206-467-0458

Company Established: 1978

Opti-Path Router

The Opti-Path Router provides the optimal path through a series of locations.

The Opti-Path Router provides a path calculation tool used to develop routing applications with MapInfo. The shortest travel paths are calculated for a set of locations defined on the map. These locations may be customers, bus stops, delivery addresses or any other location on the street network. Both the graphic representations of the paths and the turning instructions are calculated. The turning instructions include street names, distances and turn types (left, right, etc.)

When incorporated into your own applications, the Opti-Path Router provides travel paths and distance calculations. The path calculation software is contained in a dynamic link library. The Opti-Path Router also includes a sample routing application implemented in MapBasic and Microsoft C.

Price: $995

Release Date: 2/93

MapInfo Platform: Windows

Development Languages Used: MapBasic, Microsoft C

Runtime Version: No

Support: Yes

Contact: Ken Bakke
ECOTRAN SYSTEMS, INC.
21111 Chagrin Blvd
Beachwood, OH 44122
216-991-9000 FAX: 216-991-4424

Company Established: 1992

MapInfo® Authorized Developer

Orion Distributor Executive Information System (ODEIS)

An executive information system providing profitability, routing, and velocity analysis of customers and product.

ODEIS is an add-on to any distribution invoicing/order entry package. It provides detailed profitability analysis of customers or outlets by sales route, delivery route, geographic region, class of trade, or SKU. In addition, it aids in the assignment of customers to sales or delivery routes, and provides velocity reports and analysis of products vis-a-vis demographic data. ODEIS allows the distributor to maximize his resources to increase profitability and to perform "what-if" analyses on customers, sales, and delivery routes to see the advantages of any planned reorganization of his operations.

Price: $6,000

Release Date: 5/93

MapInfo Platform: Windows, Macintosh

Development Languages Used: MapBasic, MS Access Basic

Runtime Version: Yes

Support: Yes

Contact: David Naigles
ORION SYSTEMS
630 Columbia Street Extension
PO Box 85
Latham, NY 12110
518-785-1327 FAX: 518-785-0273

Company Established: 1989

MapInfo Authorized Developer

P&DPlanner/Hiway

Provides automatic long haul city to city load building, routing, and scheduling that considers multiple vehicles, customer dock and pickup or delivery schedules for pickup and deliveries.

P&DPlanner/Hiway is an automatic vehicle routing and scheduling system that provides scheduling of multiple vehicles for both pickups and deliveries between cities. After locating each customer, it determines optimal routes and vehicle loading based on vehicle weight and volume constraints, customer time windows, unloading times, and total available time to complete each trip. P&DPlanner uses an actual road network when performing calculations to build routes. The road network may be comprised of any highway database, such as those provided by RoTec. Optionally, driving directions may be produced along with driver manifests and loading/pickup reports. The road network automatically considers unique requirements (adjusts speed limits, special road restrictions, updates one-way information, provides routing around low or weight restricted bridges, prohibits roads from being used, etc.). The system will work with international road networks, as well as those from North America.

Price: Call for quote

MapInfo Platform: Windows

Development Languages Used: MapBasic, Microsoft C

Runtime Version: Yes

Support: Yes

Contact: David Ross
ROTEC
191 Albany Turnpike, Box 529
Canton, CT 06109
203-693-0257 FAX: 203-693-8091

Company Established: 1991

MapInfo® Authorized Developer

P&DPlanner/Local

Provides automatic localized city load building, routing, and scheduling that considers multiple vehicles, customer dock and pickup or delivery schedules.

P&DPlanner/Local is an automatic vehicle routing and scheduling system that provides scheduling of multiple vehicles for inbound pickups or outbound deliveries between local street addresses. After locating each customer, it determines optimal routes and vehicle loading based on vehicle weight and volume constraints, customer time windows, unloading times, and total available time to complete each trip. P&DPlanner uses an actual road network when performing calculations to build routes. The road network may be comprised of any local street-level database, such as StreetInfo Version 2.0, and may cover multiple city/county/metro areas. Optionally, driving directions may be produced along with driver manifests and loading/pickup reports. The road network automatically considers unique requirements (adjusts speed limits, special road restrictions, updates one-way information, provides routing around for low or weight restricted bridges, prohibits roads from being used, etc.). The system will work with international road networks, as well as those from North America.

Price: Call for quote

MapInfo Platform: Windows

Development Languages Used: MapBasic, Microsoft C

Runtime Version: Yes

Support: Yes

Contact: David Ross
ROTEC
191 Albany Turnpike, Box 529
Canton, CT 06109
203-693-0257 FAX: 203-693-8091

Company Established: 1991

MapInfo® Authorized Developer

PACE®to MapInfo®

This product extracts PACE (Propagation Analysis for Cellular Engineers) data and brings cell site and signal strength information into MapInfo for analysis and FCC compliance.

Instead of looking at a plot, users can examine the information dynamically over street maps and/or USGS maps. Obstruction and terrain features are available. The analysis, querying and viewing features of MapInfo are fully utilized to efficiently examine the data.

Price: Call for details

Release Date: Second quarter 1993

MapInfo Platform: Windows, Macintosh, UNIX

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Alex P. Machinis
ELASTIS CONSULTING OF CHICAGO
PO Box 1605
Des Plaines, IL 60017-1605
708-299-6952 FAX: 708-299-6990

Company Established: 1990

MapInfo® Authorized Developer

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Palette Level User System (PLUS™)/Developer Version

The PLUS™ environment provides an enhanced graphical user-interface which simplifies menu access and allows for additional tools, "PLUGINz™" to be added.

The Developer Version allows the creation of a custom graphic interface for your MapBasic applications and additional development of PLUGINz™ for larger market penetration of your vertical market tools.

In addition to the PLUS/User description, the Developer version allows the MapBasic developer the tools to create speedbar (X wide or Y high), grid-style (X by Y), or free-form with .BMP graphic palettes in a fixed or floating style that work with PLUS/User. Completely controlled by your MapBasic application, you can create the custom look for your specialized application without the time and cost investment of developing your own interface.

PLUS also provides the ability of allowing multiple .MBX programs (written with PLUS) from different developers to work without interfering with one another.

Additionally, Developers are given the notes and tools to create PLUGINz for distribution as specialized tools for the PLUS/User Version.

Call or fax for more information.

Price: $320

Release Date: 3/93

MapInfo Platform: Windows

Development Languages Used: MapBasic, Visual Basic, C

Runtime Version: Not applicable

Support: Yes

Contact: Ralph Jannini
CONSULTEK SERVICES
87 Belmont Street, Unit 2
North Andover, MA 01845-2304
508-975-8242 FAX: 508-474-8949

Company Established: 1988

MapInfo®
Authorized Developer

Palette Level User System™ (PLUS™)/User Version

The PLUS™ environment provides an enhanced graphical user-interface which simplifies menu access and allows for additional tools, "PLUGINz™" to be added.

PLUS replaces the original tool palette with an enhanced colorized version which changes to accommodate the active window (mapper/layout/etc.). Additionally, PLUS provides intuitive one button access to commonly addressed menu commands; such as layer control, on-the-fly graphic editing, analysis tools, and other hidden functions.

The user has the ability to load additional tools (PLUGINz) designed by Authorized MapInfo Developers that focus on vertical markets while maintaining access to the entire MapInfo command structure. All registered end users will receive a quarterly newsletter of new PLUGINz and PLUS-AWARE MapBasic applications available from your local MapInfo VAR.

Discount pricing for Registered PLUS Developers and MapInfo Developer/VARs. Please call or FAX us for additional information, other platform availability and demo disk.

Price: $110

Release Date: 3/93

MapInfo Platform: Windows

Development Languages Used: MapBasic, VisualBasic, C

Runtime Version: Not applicable

Support: Yes

Contact: Ralph Jannini
CONSULTEK SERVICES
87 Belmont Street, Unit 2
North Andover, MA 01845-2304
508-975-8242 FAX: 508-474-8949

Company Established: 1988

MapInfo®
Authorized Developer

Paratransit Automated Scheduling System

An application for response routing.

This application performs on-line, real-time demand response routing, dispatch and reporting for a para-transit operation. Handles both same day and next day service. Interface to in-vehicle mobile data terminals is also available.

Price: Call for quote

Release Date: 1990

MapInfo Platform: DOS

Development Languages Used: Clipper, C

Runtime Version: Yes

Support: Yes

Contact: Marsha Moore
ON-LINE DATA PRODUCTS
5909 E. Waltann
Scottsdale, AZ 85254
602-494-9211

Company Established: 1988

Park, Cemetery and Water Boundary Files

Create professional quality plotted maps and screens with colored or shaded parks, cemeteries, golf courses, lakes, rivers, and other bodies of water. All boundaries are named for labeling and identification.

Available for the following U.S. counties:

- New York, NY
- Nassau, NY
- Suffolk, NY
- Westchester, NY
- Rockland, NY
- Putnam, NY
- Orange, NY
- Fairfield, CT

Price: $395 per county

Release Date: 1991

MapInfo Platform: DOS

Development Languages Used: Not applicable

Runtime Version: Not applicable

Support: Not applicable

Contact: Mark Roggen
ROGGEN MANAGEMENT
CONSULTANTS, INC.
425 East 63rd Street
New York, NY 10021
800-676-4436 FAX: 212-888-6270

Company Established: 1975

PC-Dispatch

PC-Dispatch is a computer-aided dispatching system for the transportation industry.

PC-Dispatch is a computer-aided radio dispatch system for automated street-level routing and scheduling, cab/sedan/limousine/courier industries. Along with its dispatching capabilities, PC-Dispatch contains the following modules: accounting, cashiering, vehicle maintenance, voucher redemption and related modules. PC-Dispatch is network-compatible.

Price: Systems start at $20,000

Release Date: 3/90

MapInfo Platform: DOS

Development Languages Used: Clipper

Runtime Version: Yes

Support: Yes

Contact: Eric Podietz
MOBILE COMPUTER SYSTEMS
333 Jenkintown Commons
Jenkintown, PA 19046
800-338-6066

Company Established: 1986

PERMITS

PERMITS is an automated land management and permit information tracking system.

From the initial site plan review through the final inspection and Certificate of Occupancy, PERMITS tracks all aspects of the development process. PERMITS is designed to track all types of activities for cities, counties and states. Activity information is integrated with assessor's data, geographic information system data and detail site data. PERMITS is designed to track activities for planning, building, engineering, fire, health, code enforcement and others.

Price: $7,000 - $20,000

Release Date: 4/90

MapInfo Platform: DOS

Development Languages Used: MicroFocus COBOL

Runtime Version: Yes

Support: Yes

Contact: Robert Ausherman
SIERRA COMPUTER SYSTEMS, INC.
2378 W. Whitendale Ave.
Visalia, CA 93277
209-627-1959 FAX: 209-627-4906

Company Established: 1979

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PetroView™

An upstream petroleum database containing information on oil and gas operations in the North Sea.

PetroView contains information on exploration permits (including the companies holding interests in the permits), wells, oil and gas fields, platforms and pipelines. Information is updated monthly and comes with a number of routines to analyze the data.

Price: £10,000 for the first year, £3,000 for subsequent years; call for current U.S. pricing

Release Date: 10/92

MapInfo Platform: Windows (2.0)

Support: Yes

Contact: James Sales
ARTHUR ANDERSEN
PETROLEUM SERVICES
1 Surrey Street
London, WC2R 2PS
England
071-438-3635 FAX: 071-438-3881

Company Established: 1918

PICTUREz™ (a PLUS™-AWARE Application)

Easy to include utility to attach pictures to your database. Accepts 256-color .BMP files to enhance Real Estate, Environmental, and other markets.

You can now add picture files to MapInfo to compliment your application. Simply click on any prepared map element and bring up the appropriate picture. You also have the ability to scroll through multiple pictures of that record or search by picture/keyword and determine its location in the map. A developer toolkit is also available late first quarter 1993. Call for more information.

Price: $85 ($175 with PLUS/User)

Release Date: 3/93

MapInfo Platform: Windows

Development Languages Used: MapBasic, Visual Basic

Runtime Version: Not applicable

Support: Yes

Contact: Ralph Jannini
CONSULTEK SERVICES
87 Belmont Street
North Andover, MA 01845
508-975-8242 FAX: 508-474-8949

Company Established: 1988

PIFO Picture Image Filing Option

An optical disk storage, retrieval, display, and printing system developed to interface with MapInfo.

The system provides for the scanning of photographic images which are stored on optical disk. Linkages are made through MapInfo by "clicking" to the point display. The images can be displayed and/or printed with photographic quality.

- Linkage to Real Property Mapping Plus!
- Facility management
- Interior photo recall
- Raster drawing recall

Price: Call for quote; as low as $2,000

Release Date: 8/92

MapInfo Platform: DOS; Windows (under development)

Development Languages Used: Call for details

Runtime Version: No

Support: Yes

Contact: Rick Talbot
STETSON-HARZA, INC.
181 Genesee Street
Utica, NY 13501-2168
800-945-MAPS FAX: 315-797-8143

Company Established: 1963

MapInfo®
Authorized Developer

Polygon Check

Polygon Check (POLYCHK) is a utility that automatically checks all boundaries in a map layer for closure.

POLYCHK determines whether or not all polygons are closed. POLYCHK produces a point file containing a point that describes each open boundary. You can then use the point file to locate and close each boundary. POLYCHK is particularly convenient for users who create custom boundaries.

Price: $50

Release Date: 11/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Ming H. Louie
ATLAS DATA SYSTEMS
730 Boston Post Road
Sudbury, MA 01776
508-443-4877 FAX: 508-443-4627

Company Established: 1990

MapInfo®
Authorized Developer

Polygon Overlay

An application to create a polygon from the intersection of two map layers.

The program allows the user to perform a polygon overlay between two map layers containing polygon data. If the layers contain any other type of data they are ignored.

The intersections contain all attribute data fields from both layers. The line and brush type are not preserved, but the current line and brush type is used instead.

Price: Single license is $245, multiple licenses are $450/first + $95/each additional

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Aki PuustJarvi
KARTTAKESKUS (Map Center)
Opastinsilta 12B, PO Box 85
00521 Helsinki
Finland
901545727 FAX: 9495001394

Company Established: 1919

PolyGrid

PolyGrid creates map grids as an array of rectangular regions for virtually any projection.

With PolyGrid you can create a wide variety of map grids. Grids are useful

- as a reference system for your maps.
- for estimating coordinates of map features.
- for estimating distance between locations.
- partitioning regions of your maps.

Grids are arrays of rectangular regions. The user can associate information with each region of a grid and use MapInfo's database functions to process grid-related data.

Price: $90

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: MapBasic, VisualBasic

Runtime Version: No

Support: Yes

Developer Contact:
Eric Pierson
GLOBAL MEDIA SYSTEMS
730 Boston Post Rd
Sudbury, MA 01776
508-443-4410
FAX: 508-443-4642

Company Established: 1992

Distributor Contact:
Nick Salla
VERITECH
32 Carriage Dr
Media, PA 19063
215-566-7122
FAX: 215-566-5175

Company Established: 1973

MapInfo®
Authorized Developer

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PositCOMM™ AVL System

A complete GPS-based Automatic Vehicle Location System.

Titan's Automatic Vehicle Location (AVL) System for fleet resource management incorporates a five channel Global Positioning System (GPS) receiver for real-time vehicle tracking. Status conditions, such as "Code 3" or "Officer Needs Help" for law enforcement, can be sensed on the vehicle and then passed to the control center immediately, or with the next AVL message. Using existing voice or data radio networks to transmit vehicle navigational data, status, or user-created text messages, PositCOMM™ automatically plots the unit tracking information on color display systems using MapInfo software. Dispatchers can poll any vehicle to update the unit's position or status information, or send text messages to the vehicle to be displayed to the operator. All AVL data and messages are archived to enable event reconstruction or situation replay on the mapping display. Vehicles using different radio networks can be plotted on the some map display simultaneously for unit coordination and customer-specific data can be overlaid with the vehicle tracking information for increased fleet proficiency.

Price: approximately $2,800 per vehicle & per dispatch station; $1,000 for display software

Release Date: 11/92

MapInfo Platform: DOS, Windows

Development Languages Used: MapCode, MapBasic

Runtime Version: Yes

Support: Yes

Contact: Beth Butterfield
TITAN LINKABIT
3033 Science Park Road
San Diego, CA 92121
619-552-9500 FAX: 619-522-9645

Company Established: 1974

PROJECTz™ (a PLUS™-AWARE Application)

An improved file and project manager that improves a user's throughput and reinforces the way MapInfo map and data files are handled.

PROJECTz solves the problem of wondering where a file or map project is. PROJECTz deals with MapInfo files in the way a user works. PROJECTS, GROUPS, and LAYERS are managed with full descriptive names and provide the support information of the who, what and where of files. By using GROUPS, the user can quickly create a new project with all the graphic attributes predefined, providing greater consistency between map projects. Map and data files can be catalogued in 16 standard types, or can be created. PROJECTz also provides security across network accessed files.

Call us for more information.

Price: $150

Release Date: Second quarter 1993

MapInfo Platform: Windows

Development Languages Used: MapBasic, VisualBasic

Runtime Version: Not applicable

Support: Yes

Contact: Ralph Jannini
CONSULTEK SERVICES
87 Belmont Street North
Andover, MA 01845
508-975-8242 FAX: 508-474-8949

Company Established: 1988

MapInfo®
Authorized Developer

Public Works Service Request

An application to enhance the tracking of service requests.

Public Works Service Request is a simple, yet effective way to enter and track service requests. Each record is entered by address with validated streets and work order types. Reports can be run by specific time spans. When linked to MapInfo, all service requests can be displayed and analyzed by type of request, time span, etc.

Price: $395 single user

Release Date: 7/89

MapInfo Platform: DOS, Windows

Development Languages Used: FoxPro 1.02

Runtime Version: Yes

Support: Yes

Contact: Bob Heitner
HEITNER ASSOCIATES INC.
1919 North State Road 7, Suite 202
Margate, FL 33063
305-974-1447 FAX: 305-974-1565

Company Established: 1987

Pump Station Software

A menu-driven program to track all information relating to Lift/Pump Stations.

Pump Station Software is a four module program:

- *Station Information* including Main Station Information, Pressure Switch Miscellaneous, Breaker, Ship to, Pump, Motor, Starters & Heaters, VFDs, and Valve Information. Also included within the Station Information module is a Bill of Materials and reports on all of the above.
- *Work Order* generation, printing, processing, and reporting of reports can be done on Open/Closed, Due, Issued, and History. An archive function is also built-in to free up disk space.
- *Daily Readings* includes runtime information on each station by flow and readings. Reports can be done on each pump by either flow or readings.
- *Service Network* is a module to keep track of who is servicing each station. This section keeps track of the service center's personnel and qualifications. A detailed report can be generated on individual centers or a summary report on all centers.
- All information is stored in databases for easy viewing in MapInfo. Some applications include: locating stations at street level, open work orders, and thematic mapping of runtimes or rainfall.

Price: $895 single, $1695 LAN

Release Date: 10/90

MapInfo Platform: DOS, Windows

Development Languages Used: FoxPro 2.0; FoxPro 2.5, first quarter 1993

Runtime Version: Yes

Support: Yes

Contact: Bob Heitner
HEITNER ASSOCIATES, INC.
1919 North State Road 7, Suite 202
Margate, FL 33063
305-974-1447 FAX: 305-974-1565

Company Established: 1987

Quick-Route

Quick-Route is a vehicle routing software product to serve the daily demand for Dial-A-Ride transportation that minimizes total miles traveled.

Quick-Route is an interactive/automated computerized routing and scheduling software system designed to serve the advance appointment, demand response, curb-to-curb paratransit industry. This industry provides Dial-A-Ride transportation for the elderly and handicapped. The system provides on-line, real-time data entry, updating and retrieval through the use of a video display terminal, automatic validation of data as entered, system security provisions, and vehicle schedule production based on optimized routing (real-time and batch). The system is extremely user-friendly with pull-down menus that can be operated and maintained by office personnel. It is also flexible and allows for changing circumstances, such as number of vehicles, clients, fares, etc. It also allows fully automated route optimization with on-line over-ride capabilities.

Price: Call for quote

Release Date: 1988

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: Dr. Charles M. Jones
DECISION SCIENCES, INC.
9133 North Long Avenue, Suite 100
Skokie, IL 60077-1177
798-965-1581 FAX: 708-965-1581-2

Company Established: 1984

MapInfo
Authorized Developer

RASTER

An application that allows the use of raster-images in MapInfo.

RASTER allows a user to attach raster images to any map object. The object can be viewed either in the mapper window on top of the vector map or in a separate "info" window.

In the mapper window, raster images are overlaid using OR-function, which means that even if the raster data is overlaid on top of the vector data, vectors can still be seen - they might change color, however. The technique works especially well with black/white images since BLACK OR "any color" produces BLACK, and WHITE OR "any color" produces the same color.

The RASTER program supports zooming in the mapper window. Zooming is limited only by the amount of memory available. The program allows the user to have several raster images with different resolutions to be put on top of each other.

Price: Single license is $495, multiple licenses are $990/first + $195/each additional

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Aki PuustJarvi
KARTTAKESKUS (Map Center)
Opastinsilta 12B, PO Box 85
00521 Helsinki
Finland
901545727 FAX: 9495001394

Company Established: 1919

Real Property Mapping PLUS!

A desktop companion to the town or city assessor's real property tax database.

This application extracts the New York State Real Property System (RPS) database and overlays the parcel centroids on a map of the assessor's community. Other state/local database formats can be adapted through customization.

Database manipulations and report writing are fast and flexible. The system is entirely menu-driven. The Main Menu includes:

- Comparable Property Search
- Display Maps
- Mailing Labels (by radius)
- Photos (optional)

Under photo selection, a photo(s) of the selected property appears on the screen by "clicking" to a centroid or calling up the owner's name from the database. Photos are scanned by the user and updated as needed.

Price: $2,450 (New York State only); $3,950 (county version). Call for quotes for other states.

Release Date: 2/92

MapInfo Platform: DOS

Development Languages Used: Call for details

Runtime Version: No

Support: Yes

Contact: Rick Talbot
STETSON-HARZA, INC.
181 Genesee Street
Utica, NY 13501-2168
800-945-MAPS FAX: 315-797-8143

Company Established: 1963

Realtime Vehicle Tracking

This application allows the user to track any vehicle using a GPS (Global Positioning Satellite) device.

Vehicles are equipped with a GPS device to continually read position information from available satellites. The information is sent to the monitoring location (home base) via cellular or radio transmission. The application accepts vehicle identification and LAT/LONG data from the communications link. Incoming data is linked to the application running in MapInfo via COM1 through COM4 ports using standard communications protocols. Other options include using another PC as a data collector and server to MapInfo. This provides a method of preserving tracing information on the hard drive (for record purposes or in cases of inadvertent interruption of the tracking operation).

Price: $1695 (software only); GPS devices and communications links quoted separately

Release Date: 12/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Lionel Kattner
KSI SYSTEMS COMPANY
7115 Lupton Drive
Dallas, TX 75225
214-361-4610 FAX: 214-361-4610

Company Established: 1985

RideInfo: The Rideshare Information System

An application system for rideshare matching and planning.

The Rideshare Information System is a menu-controlled system to let non-technical users find carpool rides or riders. People interested in ride sharing are pinpointed on a street map. Users then can search for compatible riders or rides based on proximity, destination, time of travel and other information.

With RideInfo, transit agencies, employers, colleges, and others can make ride share matching fun. Staff or users can quickly answer questions such as:

- "Are there any non-smoking carpools that leave my neighborhood between 7:00AM and 7:30 AM?"
- "Are there openings for any van-pools serving the swing shift at Plant Number 2?"

Price: $595 to $1,995 varies with application

Release Date: 12/92

MapInfo Platform: Windows, Macintosh, UNIX

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: John Schlosser
SCHLOSSER GEOGRAPHIC SYSTEMS
720 Third Avenue, Suite 2015
Seattle, WA 98104
206-224-0800 FAX: 206-467-0458

Company Established: 1978

Rideshare Application

Customized ride share matching and analysis software.

CRIS (COMSIS Rideshare Information System) is the most widely used rideshare software currently available. CRIS performs carpool, van pool, public transit and park-n-ride matching in both a call-in and batch mode. COMSIS provides an add-on module to CRIS, written in MapBasic, to facilitate more complex, spatially-oriented rideshare matching. The enhancement provides visual analysis of rideshare candidate spatial distribution, rideshare matches, and employer locations.

COMSIS provides consulting services for rideshare program design and implementation. The emphasis is on providing whatever services are necessary to implement a sound rideshare program. Customized ride sharing applications are a part of this service. These applications represent either enhancements to CRIS, or customized MapBasic runtime applications as appropriate.

Price: Varies with rideshare program

Release Date: 3/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: As appropriate

Support: Yes

Contact: Roland Rogers
COMSIS Corp.
2275 Swallow Hill Road, Building 500
Pittsburgh, PA 15220
412-279-9110 FAX: 412-279-9114

Company Established: 1969

ROADMEAS

ROADMEAS measures and displays the lengths of specified mapfile segments.

With ROADMEAS a user can select the beginning and end of a highway and ROADMEAS will automatically display on the map the lengths of all the segments of the highway between the beginning and end.

ROADMEAS creates MapInfo images. This allows a user to completely determine the text style.

ROADMEAS can be used for applications that require information such as: how far is a house from an intersection?, how many feet of cable is needed for a new utility line?, etc.

Price: $50

Release Date: 9/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Ming H. Louie
ATLAS DATA SYSTEMS
730 Boston Post Rd.
Sudbury, MA 01776
508-443-4877 FAX: 508-443-4627

Company Established: 1990

Roadway Information Management System (RIMS)

An application to assist with transportation equipment maintenance.

RIMS is a series of modules for maintaining inventory and maintenance records for street signs, traffic signals, street lights and roadway information. Special geocoding routines permit automatic determination of x/y locations. Portions of files can be extended for display as a point file. RIMS can be combined with Accident Locations from ART+.

Price: Call for quote

Release Date: 7/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Ira S. Zweifler, VP
PUBLIC SECTOR DATA SYSTEMS, INC.
PO Box 603
East Brunswick, NJ 08816
908-257-1063 FAX: 908-257-8589

Company Established: 1987

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Roggen Newspaper Delivery Analyst Model

MapInfo is a required utility of the Newspaper Delivery Analyst Model, where it is used to print delivery route maps and find latitudes and longitudes for bulk drop locations.

The Newspaper Delivery analyst is a proprietary distribution flow model developed by Roggen Management Consultants to generate press and dispatch schedules which minimize the late delivery of newspapers in major metropolitan markets.

The Delivery Analyst has proved ability to quantitatively link multi-product field service demands with production flow availability. This makes it an invaluable tool for answering the "what-if?" questions which are raised when evaluating the feasibility of new facilities, revised editioning, and new product zoning.

The Newspaper Delivery Analyst Model is one of a number of proprietary software tools utilized by Roggen Management Consultants, Inc. The firm specializes in providing logistics expertise to newspapers.

Price: Call for quote (offered as a logistical consulting service only)

Release Date: 1988

MapInfo Platform: All MapInfo platforms

Development Languages Used: dBASE and Basic

Runtime Version: Not applicable

Support: Not applicable

Contact: Mark Roggen
ROGGEN MANAGEMENT
CONSULTANTS, INC.
425 East 63rd Street
New York, NY 10021
800-676-4436

Company Established: 1975

RoutePlanner/Hiway

Provides automatic long haul city to city route planning and scheduling that considers multiple vehicles, customer dock and pickup or delivery schedules.

RoutePlanner/Hiway is an automatic vehicle routing and scheduling system that provides automatic routing and scheduling of multiple vehicles for inbound or outbound travel between cities. After locating each customer, right down to individual street address levels, it determines optimal routes and vehicle assignments based on the total stops to be made, time available, pickup or delivery time windows, stop off times, and total available time to complete each trip. RoutePlanner uses an actual road network when performing calculations to build routes. The road network may be comprised of any highway database, such as those provided by RoTec. Optionally, directions may be produced along with driver manifests and loading/pickup reports. The road network automatically considers unique requirements (adjusts speed limits, special road restrictions, updates one-way information, provides routing around low or weight restricted bridges, prohibits roads from being used, etc.). The system will work with international road networks, as well as those from North America.

Price: Call for quote

MapInfo Platform: Windows

Development Languages Used: MapBasic, Microsoft C

Runtime Version: Yes

Support: Yes

Contact: David Ross
ROTEC
191 Albany Turnpike, Box 529
Canton, CT 06109
203-693-0257 FAX: 203-693-8091

Company Established: 1991

MapInfo®
Authorized Developer

RoutePlanner/Local

Provides automatic localized city route planning and scheduling that considers multiple vehicles, customer dock and pickup or delivery schedules.

RoutePlanner/Local is an automatic vehicle routing and scheduling system that provides automatic routing of multiple vehicles for pickups and deliveries between local street addresses. After locating each customer, it determines optimal routes and vehicle loading based on service time requirements, vehicle capacities, customer time windows, stop off times, and total available time to complete each trip. RoutePlanner uses an actual road network when performing calculations to build routes. The road network may be comprised of any local street-level database, such as StreetInfo Version 2.0, and may cover multiple city/county/metro areas. Optionally, driving directions may be produced along with driver manifests and loading/pickup reports. The road network automatically considers unique requirements (adjusts speed limits, special road restrictions, updates one way information, provides routing around for low or weight restricted bridges, prohibits roads from being used, etc.). The system will work with international road networks, as well as those from North America.

Price: Call for quote

MapInfo Platform: Windows

Development Languages Used: MapBasic, Microsoft C

Runtime Version: Yes

Support: Yes

Contact: David Ross
ROTEC
191 Albany Turnpike, Box 529
Canton, CT 06109
203-693-0257 FAX: 203-693-8091

Company Established: 1991

MapInfo®
Authorized Developer

Rural Addressing System Edit (RASE)

An application to create and edit a map file, especially a newly addressed area.

RASE comes with a MapInfo-ready, TIGER-Line file, a GDL modified map file, or will work with a user's map file.

The GDL modified map file contains distance-based addresses generated by MapInfo. All left and right address ranges are already entered.

RASE allows the user to edit any street, line segment by line segment, with pop-up and edit screens.

Price: $495

Release Date: 10/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: David Semo, Dan Jardine, or April Davis
GEO DEMOGRAPHICS, LTD.
69 Arch Street
Johnson City, NY 13790
607-729-5220

Company Established: 1984

Sales Lead Distributor

This tool is designed for corporations who need to refer a lead to the "nearest" product distributor or salesperson for follow-up.

The Sales Lead Distributor allows leads to be automatically allocated on the basis of distance between objects (or their boundaries) and a user-specified formula when two or more distributors are able to provide service to the same client. The user-specified formula can be built from one or more criteria chosen by the user. These formulas can then be modified.

This product can be used on a network by several personnel for single queries or can distribute thousands of leads in a batch mode.

Price: Call for quote

Release Date: 3/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: Todd Radulski
LOGISTIC MAPPING CORP.
2923 Lowery Drive
Oviedo, FL 32765
407-366-5611 FAX: 407-365-1145

Company Established: 1985

Salon Software

An application for beauty salons that allows tracking of client histories and marketing activities.

Salon Software is written in a windowing environment and can be used in both small and large beauty salons. Its two major functions are customer services and management operations. Once entered, the customer's treatment history is password protected, as are all management functions. Reporting includes promotions, history, and products. When linked to MapInfo, a manager can thematically shade boundaries with information from promotions and marketing activities.

Price: $1,495

Release Date: 3/91

MapInfo Platform: DOS, Windows

Development Languages Used: FoxPro 1.02

Runtime Version: Yes

Support: Yes

Contact: Bob Heitner
HEITNER ASSOCIATES INC.
1919 North State Road 7, Suite 202
Margate, FL 33063
305-974-1447 FAX: 305-974-1565

Company Established: 1987

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Sanitary Sewer Maintenance Module

An application to locate and maintain sewer system inventories.

The Sanitary Sewer Maintenance Module is a runtime version database application that works in concert with MapInfo. The module produces pointfiles that are used to provide an inventory of sanitary sewer systems, preventive maintenance cycles, and repair history. Several reports can be generated for hard copy records. Problem descriptions can be entered for the sanitary sewer system when complaint calls are received, or at any other time. If remedial action is necessary, a work order may be printed to distribute to a service crew. After the problem(s) is corrected, the completed repair information is entered into the system for generation of comprehensive management reports. This ensures that you will have an accurate, current, and complete inventory of the sanitary sewer system.

Price: $3500

Release Date: 9/90

MapInfo Platform: DOS, Windows

Development Languages Used: FoxBase

Runtime Version: Yes

Support: Yes

Contact: Bernie T. Rivas, Josh A. Kopel,
Harry R. Smith
PRIME\WARE ASSOCIATES, LTD.
1600 Collowhill Street
Philadelphia, PA 19130
215-561-3020 FAX: 215-561-4093

Company Established: 1983

Search Quick! and Search Quicker!

Two utilities that allow radius searching and reporting on points.

Search Quick! allows the user to place cross hairs on a point in database A. Once the point is selected, Search Quick! will automatically draw a circle with a pre-defined radius, search for records in database B, and generate a report bearing the point's name.

Like Search Quick!, Search Quicker! performs the same radius searching but with an added twist. After generating a report on the first point, it will go to all the remaining points in database A and generate reports for each point.

Price: Search Quick!: $75; Search Quicker!: $95

Release Date: 3/91

MapInfo Platform: DOS, Windows

Development Languages Used: MapCode

Runtime Version: Not applicable

Support: Yes

Contact:

Blago Simenov
DATAMAP LTD
56 Oak Meadow Blvd.
Scarborough, ON M1E 4G1
Canada
416-287-3240
FAX: 416-287-3476

Christo Assenov
DATAMAP
EUROPE LTD
52 Kniaz Boris I St.
Sofia 1423
Bulgaria
+3592-524-365
FAX: +3592-522-913

Company Established: 1975

See-All-Files

A utility that opens a window showing the status of all the map, boundary, and image files that have been added.

With See-All-Files, a user can see at a glance a single listing of all files that are loaded. Also displayed is the status/characteristics of the files. This is useful when working with many files to help create the correct display.

Price: $45

Release Date: 10/89

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Not applicable

Support: Yes

Contact:

Blago Simenov
DATAMAP LTD
56 Oak Meadow Blvd.
Scarborough, ON M1E 4G1
Canada
416-287-3240
FAX: 416-287-3476

Christo Assenov
DATAMAP
EUROPE LTD
52 Kniaz Boris I St.
Sofia 1423
Bulgaria
+3592-524-365
FAX: +3592-522-913

Company Established: 1975

SERIAL .BIN

A tool for serial communications including support for Hayes compatible modems.

Serial communication ability can enhance many applications. SERIAL .BIN gives your MapCode application serial communication ability. This tool allows your application to open and close serial ports, send and receive data, dial modems and check for carrier detection. Now you can manipulate remote databases under application control eliminating expensive or repetitive data entry. Add polish to your application!

Price: $295

Release Date: 12/92

MapInfo Platform: DOS

Development Languages Used: C

Runtime Version: Not applicable

Support: Yes

Contact: Jim Lebeau
MAYDAY USA INC.
1400 Broadfield Blvd, Suite 300
Houston, TX 77084
713-579-8900 FAX: 713-579-1494

Company Established: 1987

Service-Manager™

An advanced system utilizing Radio Frequency technology to dispatch service personnel, track inventory and monitor truck movement on a real-time basis.

General Programming's Service-Manager is an advanced system utilizing Radio Frequency (RF) technology to dispatch service personnel, track inventory and monitor truck movement on a real-time basis. Service-Manager combines the use of RF hand-held units with the General Programming Network to provide a communications link between the base dispatch station and the route service personnel. The benefits of Service-Manager's truck-tracking are that:

- the dispatch office can determine the best truck to handle a service call.
- management will have the capability to monitor work time, drive time and break time.
- preventive maintenance schedules can be determined through the truck utilization report.

Price: Call for details

Release Date: 1993

MapInfo Platform: Windows

Development Languages Used: Progress, MapBasic, C

Runtime Version: Yes

Support: Yes

Contact: Robin Moss
GENERAL PROGRAMMING, INC.
15770 North Dallas Parkway, Suite 1100
Dallas, TX 75248
214-385-0400 FAX: 214-385-0423

Company Established: 1984

Snow Removal Operations and Planning System

A program designed to classify road conditions during emergency operations.

The Snow Removal Operations and Planning System is an on-site information system that reads a file containing the condition classification of roads within a sector of snow removal responsibility and thematically displays the condition of classification sectors by coloring them according to how they are classified. The system also reads another file containing the status of snow removal operations for each snow removal route and displays that condition on a street map by color coding streets according to the reported status. The status of snow removal operations at key facilities, such as hospitals, police stations, and government buildings, may also be displayed on a map.

Price: Call for quote

Release Date: 12/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Donald Karrer
GENERAL ANALYTICS CORPORATION
8133 Leesburg Pike, Suite 850
Vienna, VA 22182
703-847-4660 FAX: 703-506-2196

Company Established: 1986

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Snow Removal System

A program designed to facilitate tracking road and site conditions during a snow emergency.

The Snow Removal System enables geographic access to tracking road and site conditions and snow removal operations for a municipal or metropolitan area using a digitized map of primary and secondary snow route map files with a geocoded set of site point files. The system has the capability to toggle on or off essential information about road and site status; color code conditions, the status of clearing operations, and the clearing status of essential facilities; locate road blockages; and identify locations that require additional clearing resources.

Price: Call for quote

Release Date: 12/91

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Donald Karrer
GENERAL ANALYTICS CORPORATION
8133 Leesburg Pike, Suite 850
Vienna, VA 22182
703-847-4660 FAX: 703-506-2196

Company Established: 1986

SPLITMMI

A tool to split a mapfile into four separate files.

SPLITMMI splits a MMI (mapfile) into four separate files: STREET.MMI, WATER.MMI, RAILROAD.MMI, AND POLITIC.MMI. This utility can split the map based according to the street type codes in the mapfiles: street=0, railroad=1, water=2, political=3. Separating maps into different files allows more flexibility with layer pieces of a total map.

Price: $295

Release Date: 8/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Todd Radulski
DMSC INC.
2923 Lowery Drive
Ovieda, FL 32765
407-366-5611 FAX: 407-365-1145

Company Established: 1985

Storm Water Maintenance Module

An application to locate and maintain storm water system inventories.

The Storm Water Maintenance Module is a runtime version database application that works in concert with MapInfo. The module produces pointfiles that are used to provide an inventory of storm water systems, preventive maintenance cycles, and repair history. Several reports can be generated for hard copy records. Problem descriptions can be entered for the storm water system when complaint calls are received, or at any other time. If remedial action is necessary, a work order may be printed to distribute to a service crew. After the problem(s) is corrected, the completed repair information is entered into the system for generation of comprehensive management reports. This ensures that the user will have an accurate, current, and complete inventory of the storm water system.

Price: $3500

Release Date: 9/90

MapInfo Platform: DOS, Windows

Development Languages Used: FoxBase

Runtime Version: Yes

Support: Yes

Contact: Bernie T. Rivas, Josh A. Kopel,
Harry R. Smith
PRIME\WARE ASSOCIATES, LTD.
1600 Collowhill Street
Philadelphia, PA 19130
215-561-3020 FAX: 215-561-4093

Company Established: 1983

Street Changer

A tool to assist in changing street names and colors.

Street Changer allows a user to point at a single segment of a street and change its name or color along its entire length in one simple step. When pointing to a street, Street Changer will provide the user with the street's name. He can respond that the street should be changed and the application will find and highlight all the segments of that street within the current map window. A data entry window will allow changes of names and street colors. Street Changer will perform the editing on multiple street segments. Changes can be permanently stored.

Price: $495

Release Date: 8/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Todd Radulski
DMSC, INC.
2923 Lowery Drive
Ovieda, FL 32765
407-366-5611 FAX: 407-365-1145

Company Established: 1985

Streets and Numbers Within Boundaries

A utility to optimize street files.

Streets and Numbers Within Boundaries generates an alphabetical list of streets and parts of streets within a boundary; generates street numbers (from and to) for each street or part of street. With this information, the user can request the removal of unwanted segments within a boundary (railroads, rivers, shoreline, etc.)

Price: $95

Release Date: 1/90

MapInfo Platform: DOS (Boundary Import/Export Module also needed)

Development Languages Used: dBASE

Runtime Version: Not applicable

Support: Yes

Contact:

Blago Simenov
DATAMAP LTD
56 Oak Meadow Blvd.
Scarborough, ON M1E 4G1
Canada
416-287-3240
FAX: 416-287-3476

Christo Assenov
DATAMAP
EUROPE LTD
52 Kniaz Boris I St.
Sofia 1423
Bulgaria
+3592-524-365
FAX: +3592-522-913

Company Established: 1975

StreetWise™

Address correction and standardization software.

Matches addresses in a MapInfo table to the addresses on a CD-ROM that contains every deliverable address in the United States. Corrects misspelled street names, adds directionals, corrects street type, and expands street name abbreviations. StreetWise can also add ZIP+4 and postal carrier route codes. REQUIRES A CD-ROM DRIVE. This easy to use software significantly improves street-address geocoding by verifying addresses against a national address database. Quarterly database up-dates and subscriptions available.

Price: $395

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: MapBasic, C

Runtime Version: No

Support: Yes

Contact: Jonathan R. Gross
CATALYST CORPORATION
7101 York Avenue
South Edina, MN 55435
612-921-3278 FAX: 612-921-3279

Company Established: 1991

MapInfo® Authorized Developer

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Surface Parking Lots Module

An application to maintain an inventory of parking lots.

The Surface Parking Lots Module is a runtime version database application that works in concert with MapInfo. The module produces pointfiles that are used to provide an inventory of parking lots. If needed, several reports can be generated for hard copy records. Problem descriptions can be entered for each parking lot when complaint calls are received, or at any other time. If remedial action is necessary, a work order may be printed to distribute to a service crew. After the problem(s) is corrected, the completed repair information is entered into the system for generation of comprehensive management reports. This ensures that the user will have an accurate, current, and complete inventory of parking lots.

Price: $3500

Release Date: 9/90

MapInfo Platform: DOS, Windows

Development Languages Used: FoxBase

Runtime Version: Yes

Support: Yes

Contact: Bernie T. Rivas, Josh A. Kopel,
Harry R. Smith
PRIME\WARE ASSOCIATES, LTD.
1600 Collowhill Street
Philadelphia, PA 19130
215-561-3020 FAX: 215-561-4093

Company Established: 1983

SurveyInfo: The Survey Monument Information System

Visual display and index for survey monuments.

The Survey Monument Information System is a menu-controlled system to simplify the process of finding and tracking information about survey monuments. Monuments are displayed as a map of point locations on screen. Users can query the system by selecting points or groups of points, then cause the system to display or print monument coordinates, history, spatial accuracy, and a variety of other information about each point. Users can easily edit information on file about each monument including adding any number of user-defined fields of information to describe the monument.

With the Visual Map Library, map librarians, public works agencies, civil engineers, utilities, developers, builders, and others can quickly answer questions such as:

- What monuments are near the proposed "Happy Valley Estates," and what do we know about their condition?
- How can our field crew find the monument that is supposed to be near an oak tree in "Willow Marsh?"
- Where are the "SuperNet" monuments in "Washington County?"

Price: $595 to $1,995 varies with application

Release Date: 9/92

MapInfo Platform: Windows, Macintosh, UNIX

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: John Schlosser
SCHLOSSER GEOGRAPHIC SYSTEMS
720 Third Avenue, Suite 2015
Seattle, WA 98104
206-224-0800 FAX: 206-467-0458

Company Established: 1978

THEMA

THEMA provides MapInfo users with alternatives to displaying thematically shaded information.

THEMA provides extended thematic mapping for MapInfo users. It is an effective analysis and presentation tool. With THEMA users can choose from four chart types: (bar, stacked bar, circle, and pie); select up to five variables; create a legend; and use filtered data.

With THEMA, a user can clearly represent complex data relationships in chart form. Using pointfile data, THEMA allows a user to create the thematic chart that best reflects the relationships among the data.

THEMA can be used for applications requiring sales analysis, comparison of different portions of regions, comparing population versus sales or volume versus product mix.

Price: $195

Release Date: 9/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: No

Support: Yes

Contact: Ming H. Louie
ATLAS DATA SYSTEMS
730 Boston Post Rd.
Sudbury, MA 01776
508-443-4877 FAX: 508-443-4627

Company Established: 1990

MapInfo

TIGER to MapInfo Translator (TMT)

An application to convert line, point, and polygon data for U.S. Census TIGER/Line files.

TMT is a utility designed to aid both novice and expert users in the process of creating multi-layer maps from TIGER files. The PUB GRF90 file is included with TMT.

TMT consists of several modules, all of which are menu and/or table driven to maximize user contact:

- Map Builder
- Polygon Builder
- Feature Builder
- Dictionary Builder

TMT was designed with ease-of-use as an objective. TMT uses the TIGER Record Types 1,2,4, and 5 to create output files in the MapInfo Map Interchange Format and/or the MapInfo Boundary Interchange Format.

Price: $695

Release Date: 1/92

MapInfo Platform: All MapInfo platforms

Development Languages Used: Not applicable

Runtime Version: Not applicable

Support: Yes

Contact: Suzan Wolent or Ken Tozier
INTERNATIONAL COMPUTER WORKS
PO Box 16232
Tampa, FL 33687-6232
813-988-0434 FAX: 813-985-5661

Company Established: 1988

TOPSIGHT

A geographic information system for banks which provides the banker with a means for managing compliance reporting and targeting marketing opportunities.

TOPSIGHT provides menu-driven selections for easy mapping and statistical reporting of bank data; pre-installed demographic information consistent with FFIEC requirements; 1990 Census Tract and street address information; HMDA, FDIC, and UTS deposit and loan information; year over year performance comparisons, and built-in record geocoding capability. The system can reduce compliance and marketing expense through improved targeting. It can eliminate duplication, reduce errors, and create understandable management reports which show at a glance whether goals are being met, exceeded, or missed.

Price: $4,800

Release Date: 7/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Terence B. O'Brien
BANK MARKETING GROUP - GENERAL ANALYTICS CORP.
117 Leeds Road
Mt. Laurel, NJ 08054
609-234-5261 FAX: 609-234-5261

Company Established: 1989

MapInfo Authorized Developer

Traffic*Quest

Marketing, transportation and accounting for bulk commodities.

Traffic*Quest: railcar, multi-department, multi-office tracking and marketing program for the shipment of bulk commodities (fuels, LPG, edible oils, sulfur, etc.). Traffic*Quest's features include:

- fleet management of 2,500 or more railcars in North America
- car tracking
- railcar orders
- shipments
- fleet & route management
- contract administration
- financial analysis
- accounting & communications
- supports multi-company, multi-location operation.

Available in DOS, DOS LAN & UNIX versions.

Price: $5,000+

Release Date: 1993

MapInfo Platform: Windows

Development Languages Used: MapBasic, FoxPro

Runtime Version: Yes

Support: Yes

Contact: Ian McMillan, Sales Manager
QUEST COMPUTER CONSULTANTS
145-6815 Eighth Street NE
Calgary, AB T2E 7H7
Canada
403-275-2775 FAX: 403-295-0732

Company Established: 1984

MapInfo Authorized Developer

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Traffic Signals Module

An application to locate and maintain traffic signal information.

The Traffic Signals Module is a runtime version database application that works in concert with MapInfo. The module produces pointfiles that are used to provide an inventory of traffic signal permits, permit revisions, litigation records, preventive maintenance cycles, repair history, and parts inventory. Several reports can be generated for hard copy records. Problem descriptions can be entered for each traffic signal when complaint calls are received, or at any other time. If remedial action is necessary, a work order may be printed to distribute to a service crew. After the problem(s) is corrected, the completed repair information is entered into the system for generation of comprehensive management reports. This ensures that the user will have an accurate, current, and complete inventory of traffic signals.

Price: $3500

Release Date: 9/90

MapInfo Platform: DOS, Windows

Development Languages Used: FoxBase

Runtime Version: Yes

Support: Yes

Contact: Bernie T. Rivas, Josh A. Kopel,
Harry R. Smith
PRIME\WARE ASSOCIATES, LTD.
1600 Collowhill Street
Philadelphia, PA 19130
215-561-3020 FAX: 215-561-4093

Company Established: 1983

Traffic Signs Module

An application to locate and maintain traffic signs.

The Traffic Signs Module is a runtime version database application that works in concert with MapInfo. The module produces pointfiles that are used to provide an inventory of traffic signs. If needed, several reports can be generated for hard copy records. Problem descriptions can be entered for each sign when complaint calls are received. or at any other time. If remedial action is necessary, a work order may be printed to distribute to a service crew. After the problem(s) is corrected, the completed repair information is entered into the system for generation of comprehensive management reports. This ensures that the user will have an accurate, current, and complete inventory of traffic signs.

Price: $3500

Release Date: 9/90

MapInfo Platform: DOS, Windows

Development Languages Used: FoxBase

Runtime Version: Yes

Support: Yes

Contact: Bernie T. Rivas, Josh A. Kopel,
Harry R. Smith
PRIME\WARE ASSOCIATES, LTD.
1600 Collowhill Street
Philadelphia, PA 19130
215-561-3020 FAX: 215-561-4093

Company Established: 1983

Tralaine

Tralaine converts coordinates in data files from one geographic coordinate system to another.

Tralaine can process files in any of 12 different file formats including .MBI boundary files and .MMI line files, text files, .DXF files, and others. Tralaine's Coordinate System Dictionary includes over 330 coordinate system definitions including all UTM and State Plane zones and several others. Use Tralaine's Coordinate System Editor to define additional coordinate systems based on any of the six supported projections: Transverse Mercator, Lambert Conformal Conic, Hotine Oblique Mercator, Albers Equal Area, Azimuthal Equidistant, and the Standard Mercator. Tralaine can convert from any defined coordinate system to any other.

Also, add optional NADCON Overlay to convert from NAD27 to NAD83. The NADCON Overlay uses the same algorithm as the National Geodetic Service's NADCON program and the numerical results are identical.

Price: Tralaine - $250; NADCON Overlay - $125

Release Date: 11/88; updated 12/91

MapInfo Platform: DOS

Development Languages Used: Not applicable

Runtime Version: Not applicable

Support: Yes

Contact: Norm Olsen
MENTOR SOFTWARE, INC.
11534 Steele Street
Thornton, CO 80233-2449
303-252-9090 FAX: 303-450-9859

Company Established: 1987

Transfinder

Transportation/scheduling technique and redistricting tool.

Transfinder utilizes geocoding to display student and school location data on the district's area digitized maps. By following scheduling methodology, the user interacts with the graphic and textual databases to examine the concentration of students, plot locations, and "groupings" of students to a sequence of pickup sites. Students are assigned pickup sites and buses and bus drivers are assigned bus routes. The mapping bus route is printed to identify and label the pickup sites, and the sequence of pickup or return. The distance traveled between pickup sites and the entire route is calculated automatically. Transfinder provides an effective scheduling system to display, interact, plan, adjust and print busing routes. The related databases serve as the basis for a multitude of user-specified reports, e.g. student's assigned bus and driver, designation of pickup sites/times, and emergency notifications.

Price: Call for quote

Release Date: 1989

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Jim Forth
FORTH & ASSOCIATES LTD.
120 Erie Blvd.
Schenectady, NY 12305
518-377-3609

Company Established: 1986

Transportation Manager

An application for transportation management and planning.

Transportation Manager can be used by state and local transportation and public works departments to consolidate and maintain critical transportation management and planning information in one system. All information can be accurately located on local street maps making access as easy as pointing to a location and selecting. Information that can be included: vehicle volume counts street overlays, accident locations, sign inventory by street location, signalized traffic control locations with detail equipment inventory, pavement conditions street overlays, and lane description street overlays. All of this information can be used individually or combined for a complete engineering analysis and plan.

Price: $1470

Release Date: 3/90

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Andy Keel
RGA, INC.
595 Southlake Blvd.
Richmond, VA 23236
804-794-1592 FAX: 804-379-1016

Company Established: 1975

Transpro

Transpro automates transportation routes.

Transpro is a program that automates much of the work required to set up transportation routes. Transpro is modelled after a manual method of placing pins on a map and then putting rubber bands around groups of pins that construct a route. Transpro automatically places the pins on a map using street addresses and ZIP Codes extracted from the existing customer database. Routes can then be drawn on the screen and Transpro will automatically fill in the customers' bus codes.

Price: $1995 (includes one county map and ZIP Code boundaries for a state)

Release Date: 3/89

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Curtis Schleimer
MAPPING SOLUTIONS
PO Box 1246
Port Washington, NY 11050
516-767-0572

Company Established: 1989

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TripPlanner/Hiway

Provides city to city (down to Zip Code level) routing and driving directions, distances and time with automatic multiple stops/pick ups optimization.

TripPlanner/Hiway is an electronic road map that provides detailed driving directions, extremely accurate driving distances and time, and high quality digital map output between cities or postal codes (i.e.: Zip Codes). Using a highway road network found in a mapping database, TripPlanner/Hiway finds the "best" route. Additionally, multiple cities or postal codes along the trip may be automatically sequenced and optimized to detect the most efficient overall trip. An accurate highway database of North America is provided with the system; however, the road network may be comprised of any highway database. An optional module allows the end user to customize the road network to meet their unique requirements (adjusts speed limits, special road restrictions, updates commercial vehicle restrictions, provides alternate routes for low or weight restricted bridges, prohibits roads from being used, etc.). The system will handle any international highway road network for countries other than North America.

Price: $1,995

Release Date: 6/92

MapInfo Platform: Windows

Development Languages Used: MapBasic, Microsoft C/DLL

Runtime Version: Yes

Support: Yes

Contact: David Ross
ROTEC
191 Albany Turnpike, Box 529
Canton, CT 06109
203-693-0257 FAX: 203-693-8091

Company Established: 1991

Trouble Analysis Mapping Systems (TAMS)

A trouble analysis tracking system for the outside plant division of a telecommunications company.

TAMS provides database and mapping tools necessary to perform critical analysis of a geographically-based telecommunications network. With TAMS, a user can interactively produce maps with trouble data. These maps can be high level maps of division, districts, wire centers - all the way down to street maps of a city block.

Map output can display Disposition Category, Disposition Code, Cause Code, Type Code, Bad Allocation Area, and Cross Box. The TAMS database contains trouble records which can be extracted from MTAS, TREAT, or other trouble tracking systems and used for historical analysis. The historical data can be used to determine trouble report patterns within the network. TAMS contains several standard reports, such as: Disposition Code Summary, Disposition Code Detail, Weather Summary and Cable Reports. TAMS users can also create custom reports. Using the inherent 4GL, users can enter the database editor and perform on-the-fly searches for unusual queries.

Price: $200,000 for turnkey system

Release Date: 2/92

MapInfo Platform: DOS

Development Languages Used: MapCode, Progress, C, UNIX Scripts

Runtime Version: Not applicable

Support: Yes

Contact: Mark Fouraker
ADVANCE TECHNOLOGY CONSULTANTS
5 Concourse Parkway, Suite 2800
Atlanta, GA 30328
404-512-4080 FAX: 404-512-4096

Company Established: 1988

Turnkey Logistics Consulting Services

Consulting services for newspaper delivery systems.

Roggen Management Consultants provides consulting for the development of new delivery route networks, redistricting, rezoning, and plant and warehouse site selection. Roggen utilizes MapInfo and proprietary software models.

Price: Call for quote; determined by project

Release Date: Not applicable

MapInfo Platform: All MapInfo platforms

Development Languages Used: Not applicable

Runtime Version: Not applicable

Support: Not applicable

Contact: Mark Roggen
ROGGEN MANAGEMENT CONSULTANTS, INC.
425 East 63rd Street
New York, NY 10021
800-676-4436

Company Established: 1975

The Ultimate Geocoder

An application to geocode any United States Post Office deliverable address without operator interaction.

The Ultimate Geocoder is based upon the latest data from the Bureau of the Census, the United States Postal Service and the United States Geological Survey and is updated quarterly on CD-ROM and other appropriate media. If you know the street address, then the following information can be provided without operator interaction:

- Longitude and Latitude (Note: This information allows you to present your data on the maps using MapInfo)
- ZIP Code
- ZIP Code Plus 4
- State FIPS Code
- MSA FIPS code
- Census Tract FIPS Code
- Census Block Group
- Carrier Route
- Postal Service matching strings

Special versions are available for the financial industry and its electronic submission requirements for HMDA and CRA applications. Versions of the program and associated databases are available by the individual state, combination of states or the entire United States. This application requires a CD-ROM player.

Price: Call for quote

Release Date: 11/92

MapInfo Platform: All MapInfo platforms

Development Languages Used: Dependent upon platform and customer's requirements

Runtime Version: Yes

Support: Yes

Contact: Ron Carlson
Painted Information Systems, Inc.
317 West Fourth Street
Davenport, IA 52801
319-323-MAPS FAX: 319-322-8426

Company Established: 1989

Utility Information System

An application to enhance utility inventory.

Utility Information System is a mapping and database application for electric, telephone, cable television, gas and water utilities. This application provides inventory, customer, and engineering databases that are linked to MapInfo. Different layers can be displayed all at once or one at a time for a closer look.

Price: Call for quote

Release Date: 10/90

MapInfo Platform: DOS, Windows

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: John Gibson
RCI CONSULTANTS/COMPUSOLVE INC.
8 West 3rd St., Suite 402
Winston Salem, NC 27101
919-721-4818 FAX: 919-727-0919

Company Established: 1985

VDOz™ (pronounced VIDEOS, a PLUS™-AWARE Application)

An application to add multimedia capacity to MapInfo map files.

By using the Microsoft Video for Windows, a user can now access Video/Sound in MapInfo. CONSULTEK provides the hooks that make it work in an easy-to-use environment. Registered users of PICTUREz are entitled to a $75 discount.

A developer toolkit will be available late second quarter 1993. Call for more information.

Price: $185

Release Date: Late second quarter 1993

MapInfo Platform: Windows

Development Languages Used: MapBasic, Visual Basic, AVI

Runtime Version: Not applicable

Support: Yes

Contact: Ralph Jannini
CONSULTEK SERVICES
87 Belmont Street
North Andover, MA 01845
508-975-8242 FAX: 508-474-8949

Company Established: 1988

MapInfo
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VehicleInfo

An application that feeds information to the driver of a vehicle via a digital map and GPS receiver.

The current vehicle location is determined by the GPS and displayed on a digital map in the vehicle on a laptop. Information concerning vehicle response events are transmitted to the vehicle and displayed on the map in icon form. The driver can simply click on the icon and receive relevant information about the event.

The driver can either display the next event to respond to or display all their events. If the next event to respond to is displayed on the map, this event along with the vehicle's position will be kept centered on the map so the driver can choose a path and monitor vehicle progress. The driver can mark the event as finished and automatically notify the base. This application is designed to work in conjunction with Logistic Mapping Corp.'s BaseInfo application which displays vehicle positions and status and dispatches event information to the vehicles.

Price: Call for quote

Release Date: 3/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: Todd Radulski
LOGISTIC MAPPING CORP.
2923 Lowery Drive
Oviedo, FL 32765
407-366-5611 FAX: 407-365-1145

Company Established: 1985

MapInfo
Authorized Developer

Vending-Manager

An application for vending machine maintenance.

Vending-Manager works on a network of vending machines and headquarters (or depots) computers, allowing a user to know at any moment the stock levels of any vending machine in its system. Also, without user intervention, each vending machine is programmed to notify the home computer when stock reaches a certain (user-determined) level, or when the machine is being vandalized or is in need of change or maintenance. This creates a system where the vending machine is a pre-sales unit, increasing the efficiency of vending sales dispatch and truck loading for vending sales. Through the use of a General Positioning Sensor, Vending-Manager tracks the exact longitude and latitude of trucks in the field, even when they are in motion.

Price: Call for quote

Release Date: 1993

MapInfo Platform: Windows

Development Languages Used: Progress, MapBasic, C

Runtime Version: Yes

Support: Yes

Contact: Robin Moss
GENERAL PROGRAMMING, INC.
15770 North Dallas Parkway, Suite 1100
Dallas, TX 75248
214-385-0400 FAX: 214-385-0423

Company Established: 1984

MapInfo
Authorized Developer

Visual Dispatch System (VDS)

An application that produces work orders and maps for refuse truck drivers.

VDS is a flexible, work order driven dispatch system designed to aid businesses in coordinating, planning and tracking their fleet of delivery/service vehicles. The system was initially designed for the refuse industry, but can easily be modified to adapt to virtually any business where routing of vehicles is required.

Once a work order has been created, the work order assignment screen is the key element of the system. To assign drivers/stops to work orders, a service date is entered and all work orders for that day are displayed on a map automatically scaled to the radius of that day's orders. Each work order is displayed with a unique symbol to represent the type of transaction (delivery, pickup, etc.).

A driver/stop is then assigned to the work order by the dispatcher according to a logical sequence as displayed on the screen.

Once driver/stops have been assigned, the work orders for each driver and a map of his route are automatically printed for that day.

Updated work orders are later available for export to an accounts receivable system.

Distributors are welcome.

Price: Call for quote

Release Date: 6/92

MapInfo Platform: DOS

Development Languages Used: MapCode

Runtime Version: Yes

Support: Yes

Contact: Richard Franks
AMERICAN COMPUTER SERVICES, INC.
6860 East Orangethorpe Avenue, Suite C
Buena Park, CA 90620
714-521-1023 FAX: 714-521-0312

Company Established: 1970

VoterInfo™

Allows complete capability to update and maintain voter registration databases.

Most accurately called a voter GIS (Geographic Information System), VoterInfo has been designed specifically for voter registrars and elections administrators. VoterInfo includes full capabilities for database analysis and manipulation, including comparisons between voter registration and drivers' license records to find motorists who are not registered voters. This will be a key to future voter registration drives. Once voters have been geocoded, you have the ability to easily visualize where people are registered and, more importantly, where they are not, leading to enhanced voter registration. This all means that you and your department have a decreased workload while attaining greater efficiency.

Price: Call for quote

Release Date: 1/93

MapInfo Platform: Windows

Development Languages Used: MapBasic

Runtime Version: Yes

Support: Yes

Contact: Greg Kirkpatrick
MAP RESOURCE, INC.
12593 Research Blvd, Suite 303
Austin, TX 78759
512-219-7890 FAX: 512-219-0555

Company Established: 1990

Water Distribution Maintenance Module

An application to locate and maintain water distribution inventories.

The Water Distribution Maintenance Module is a runtime version database application that works in concert with MapInfo. The module produces pointfiles that are used to provide an inventory of water distribution systems, preventive maintenance cycles, and repair history. Several reports can be generated for hard copy records. Problem descriptions can be entered for the water distribution system when complaint calls are received, or at any other time. If remedial action is necessary, a work order may be printed to distribute to a service crew. After the problem(s) is corrected, the completed repair information is entered into the system for generation of comprehensive management reports. This ensures that the user will have an accurate, current, and complete inventory of the water distribution system.

Price: $3500

Release Date: 9/90

MapInfo Platform: DOS, Windows

Development Languages Used: FoxBase

Runtime Version: Yes

Support: Yes

Contact: Bernie T. Rivas, Josh A. Kopel, Harry R. Smith
PRIME\WARE ASSOCIATES, LTD.
1600 Collowhill Street
Philadelphia, PA 19130
215-561-3020 FAX: 215-561-4093

Company Established: 1983

Where Is The Nearest...?

An application that allows the user to select a town or address, then locate the nearest relevant facility or service.

This application was originally developed for a 24-hour emergency assistance company that needed to locate the caller in distress, then find the nearest doctor, plumber, mechanic, etc. The key to this application is its ease of use. It tailors down the options in such a way that users need less than an hour to learn how to use the system. It automates several complex procedures within MapInfo so that operators with little or no computer expertise can successfully use the program. The areas of application are wide, including Health Care (Where is the nearest doctor/hospital?), Banking (Where is the nearest branch/ATM?), and Real Estate (Where is the nearest school, bus stop, etc. to a particular house?).

Price: Call for quote

Release Date: DOS 1/92; Windows 1/93

MapInfo Platform: DOS, Windows

Development Languages Used: MapCode, MapBasic

Runtime Version: Yes

Support: Yes

Contact:

Geoff Kendall
Dataview
Solutions U.K.
Suite IJ,
48 Berkeley Square
London, W1X 5DB
England
071 409 2627
FAX: 071 409 1045

Ernst Josefik
Dataview Solutions
Australia
178 Pacific Highway
St. Leonards 2065
NSW Australia
02 436 1199
FAX: 02 906 3499

Company Established: 1990

MapInfo
Authorized Developer

WorldMaps for MapInfo

WorldMaps is a detailed set of digital maps for the entire world. It is the most comprehensive and accurate base map available for such a wide area.

The data is delivered on CD-ROM in MapInfo file format, ready to run on your PC or workstation. A set of MapBasic tools is included to make it easy for you to load and display these maps.

WorldMaps were digitized from 1:1,000,000 scale US Government maps. They include sixteen separate layers of data, including such in formation as land and water areas, rivers, major roads, railroads, airports, populated places, elevation, utility, lines, and many others. All features are color-coded, which makes the maps good looking and excellent for presentation purposes.

WorldMaps can be used for any application which requires detailed maps covering a wide area. They form an ideal starting point for almost any mapping project.

Price: $1,495 for entire world, $495 for a single region

Release Date: First quarter 1993

MapInfo Platform: Windows, Macintosh, Sun

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Michael F. Bauer
AMERICAN DIGITAL CARTOGRAPHY, INC.
3003 West College Avenue
Appleton, WI 54914
414-733-6678 FAX: 414-734-3375

Company Established: 1988

ZIP to Census and Back

Generate a ZIP Code to Census Tract "cross-walk" for any area in which there is both ZIP and Census tract data.

ZIP to Census and Back will produce either a database or a printed report that can list all census tracts entirely within or partly within each ZIP Code... and vice versa. Easy to use, with dialog boxes and on-line help.

Price: $49

Release Date: 2/93

MapInfo Platform: Windows, Macintosh, UNIX

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes

Contact: Stan Lester
TELEMAP CORPORATION
327 South LaSalle Street
Chicago, IL 60604
312-427-1888 FAX: 312-427-1889

Company Established: 1988

3D MapData: Contours & Digital Elevation (DEM) data

How-to guide for using USGS & DMA topographic data (includes sample data files).

A concise technical memo describing how to use contour line and digital elevation model data with MapInfo. This product is not a software translator, but a guide to the tricks, traps. and tips for using low cost USGS topographic data with MapInfo. The memo is accompanied by a disk with sample topographic data in MapInfo format. With 3D MapData, users can answer questions such as:

- How can I use contour line data with MapInfo?
- How do I get low-cost USGS topographic data?
- What will contour lines or elevation grid data look like on screen in MapInfo?
- What are the limitations to using topographic data?

To reduce costs and support the shareware concept, please order by mail, enclosing payment: 90 day money-back satisfaction guarantee .

Price: Shareware; $10 (prepaid) + self addressed & stamped disk mailer

Release Date: 3/93

MapInfo Platform: Windows, Macintosh, Unix

Development Languages Used: MapBasic

Runtime Version: No

Support: Yes (extra cost)

Contact: John Schlosser
SCHLOSSER GEOGRAPHIC SYSTEMS
720 Third Avenue, Suite 2015
Seattle, WA 98104
206-224-0800 FAX: 206-467-0458

Company Established: 1978

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